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TICK BORNE TULAREMIA

REPORT OF FIFTEEN CASES

MAJOR GEORGE V. BYFIELD
CAPTAIN LAWRENCE BRESLOW
CAPTAIN ROLAND R. CROSS JR.
AND
CAPTAIN NOEL J. HERSHEY
MEDICAL CORPS, ARMY OF THE UNITED STATES

Tularemia is an acute infectious disease caused by Bacterium tularense (Pasteurella tularensis). The disease was discovered in 1910 by Dr. George W. McCoy of the United States Public Health Service. The original investigative work on this "plague-like disease of rodents" was carried out on ground squirrels in Tulare County, Calif.—hence the name tularemia. This disease later was found to be present in man and is identical with the "deer fly fever" of man found in Utah.[1] Many cases of human tularemia have been reported. Usually the source of the infection is not difficult to determine.

Tularemia "occurs under natural conditions in over twenty kinds of wild life, especially in wild rabbits and hares. Man becomes infected by contact of his bare hands with the raw flesh and blood of these animals or by bites of blood sucking ticks and flies which have previously fed on animals infected witl. Bacterium tularense." [1] Experimental transmission of tularemia by mosquitoes has been reported.[2]

In 1924 Parker [3] reported that the tick could serve as a carrier of tularemia. Francis cultivated B. tularense from guinea pigs which had been injected with ground-up wood ticks (Dermacentor andersoni). At that time the data seemed to indicate the possibility of transmission of tularemia from tick to man. Generation to generation transmission of the infection in both Dermacentor andersoni [4] and Dermacentor variabilis [5] has been reported. Interstadial transmission of the infection has been demonstrated in Amblyomma americanum.[4] Since 1924 many cases of tularemia have been reported in which ticks were suspected or proved to have been the transmitting agents.[6] The ticks more commonly involved in transmission of human tularemia include D. andersoni (the wood tick) and D. variabilis (the common dog tick). A. americanum (the lone star tick),[4] Dermacentor occidentalis [7] and Ixodes ricinus californicus (Banks) [8] have been referred to as carriers. The rabbit tick Hemaphysalis leporis-palustris [1] is of importance only in transmission of the disease among rabbits.

"Seasonal incidence of cases of tularemia is due to the seasonal variation of three sources of infection—tick bite, fly bite and the dressing of wild rabbits; but, owing to the overlapping of these influences, cases have occurred in the United States in every month of the year." [1] In the Eastern part of the United States the dressing of wild rabbits causes most cases during the months of November and December. Tularemia caused by fly bites occurs principally from June through September. Tularemia caused by tick bites of D. andersoni occurs principally from March through August and of D. variabilis from January through October.

Of the 600 cases of tularemia reviewed by Foshay [9] in 1940, 6 were attributed to tick bites. Francis [10] in 1941 reported a total of 53 cases of tularemia in Montana and surrounding states caused by D. andersoni and 73 cases principally in the Southern states caused by D. variabilis. In addition to these two reports, a review of the literature reveals 20 cases of tick borne tularemia, some of which may have been included by Foshay and Francis.[11]

All cases herein reported were in soldiers admitted to an evacuation hospital which was receiving patients in a maneuver area in Tennessee. All were admitted between the dates of May 14 and June 12, 1943, a period of thirty days. During operations such as these, soldiers are outdoors almost continuously, sleep on the ground in pup tents and frequently are located in

From the 27th Evacuation Hospital.

1. Francis, E.: Sources of Infection and Seasonal Incidence of Tularemia in Man, Pub. Health Rep. **52**: 103-113 (Jan. 22) 1937.
2. Phillip, C. B.; Davis, G. E., and Parker, R. R.: Experimental Transmission of Tularemia by Mosquitoes, Pub. Health Rep. **47**: 2073-2088 (Oct. 21) 1932.
3. Parker, R. R.; Francis, E., and Spencer, R. R.: Tularemia Infection in the Ticks of the Species Dermacentor Andersoni (Stiles) in the Bitterroot Valley, Montana, Pub. Health Rep. **39**: 1057-1073 (May 9) 1924.
4. Parker, R. R.: Recent Studies of Tick Borne Diseases Made at the United States Public Health Service Laboratory at Hamilton, Montana, Proc. Fifth Pacific Sc. Cong., 1933, pp. 3370-3371.
5. Phillip, C. B., and Jennison, W. L.: American Dog Tick, Dermacentor Variabilis, as Host of Bacterium Tularense, Pub. Health Rep. **49**: 386-392 (March 23) 1934.
6. All the references in footnote 11; also Foshay[9] and Cecil.[10]
7. Levin, S. L.: Transmission of Tularemia Due to Tick Bite, South. M. J. **34**: 1169-1172 (Nov.) 1941.
8. Davis, G. E., and Kohls, G. M.: Ixodes Ricinus Californicus (Banks) as Possible Vector of B. Tularense, Pub. Health Rep. **52**: 281-282 (March 5) 1937.
9. Foshay, L.: A Summary of Certain Aspects of Tularemia Including Methods for Early Diagnosis and Results of Serum Therapy in 600 Patients, Medicine **19**: 1-83 (Feb.) 1940.
10. Cecil, R. L.: Textbook of Medicine, ed. 5, Philadelphia, W. B. Saunders Company, 1940, p. 371.
11. Moss, R. E., and Evans, L. R.: Cases of Tularemia Contracted on Cape Cod, New England J. Med. **223**: 885-887 (Nov. 28) 1940. Shaffer, J. H.: Four Cases of Tularemia with Unusual Contacts, Ann. Int. Med. **18**: 72-80 (Jan.) 1943. Parson, G. W.: Interesting Cases of Tularemia, Tri-State M. J. **13**: 2708-2714 (March) 1941. Perret, J. M.: A Study of 69 Cases of Tularemia, New Orleans M. & S. J. **88**: 694-702 (May) 1936. Werling, E. H.: Ten Cases of Tularemia, J. Oklahoma M. A. **35**: 103-106 (March) 1942. Kennedy, J. A.: Pulmonary Tularemia: Discussion of Disease as a Clinical Entity, with Report of Three Cases, J. A. M. A. **118**: 781-787 (March 7) 1942. Blackford, S. D., and Casey, C. J.: Pleuropulmonary Tularemia, Arch. Int. Med. **67**: 43-71 (Jan.) 1941. Fahr, G.: Tularemia Following Wood Tick Bite, Minnesota Med. **16**: 634-635 (Oct.) 1933. Brown, E. G.; Lattimore, J. L., and Hofmann, J. C.: Summary of 120 Cases in Kansas, J. Kansas M. Soc. **34**: 296-302 (Aug.) 1933. Pasternack, J. G.: Tularemic Inguinal Buboes Following Tick Bites, J. A. M. A. **112**: 1814-1817 (May 6) 1939. Levin.[7]

wooded terrain. All patients had been located in a relatively small area.

Ten patients had definite histories of a tick bite. Most of the patients had a history either of removing ticks which had become attached to their skin, of having found ticks crawling on their bodies or clothing or of having seen or removed ticks from the bodies or clothing of fellow soldiers. This information established firmly the presence of ticks in large numbers and gave some indication of the annoyance they caused.

Fig. 1 (case 9).—Early tularemic lesion of lower extremity.

SYMPTOMS

Histories from the patients indicated an interval varying from one to nine days from the known tick bite until the onset of symptoms. The average interval was five days. However, in view of the probability of multiple exposures, limited reliance must be placed on these figures.

The type of onset was variable. Some patients gave a history of a moderately severe chill followed by a fever as high as 104 F., a severe headache, backache, generalized muscular soreness and "soreness of the bones." Other patients had no chill but complained of general malaise and symptoms similar to those noted during the onset of a mild influenza. They complained usually of pain and tenderness in the area of the regional lymphadenopathy.

PHYSICAL FINDINGS

Examination usually revealed febrile patients with normal sensoriums, the acuteness and severity of the illness varying considerably among them. Some showed a moderate degree of dehydration. Otherwise, nothing remarkable was noted except the general appearance of the skin and the presence of characteristic tularemic lesions. The skin of most patients gave evidence of multiple "insect" bites, attributed to chiggers, mosquitoes, ticks or a combination of these.

The lesions of tularemia, the "punched out" or ragged ulcers and the regional lymphadenopathy varied in location. The earliest tularemic lesions noted were areas of skin 2 to 3 cm. in diameter showing central necrosis and ulceration. The ulcers varied in shape, some having regular edges presenting a punched out effect and others having irregular ragged edges. The early ulcer was usually surrounded by a zone of erythema which was destined to undergo partial necrosis, thereby enlarging the ulcer itself (figs. 1 to 4). Nine patients had typical ulcers. They were located on the leg (6 cases), the arm (1 case) and the chest wall (2 cases).

Thirteen patients had large masses of tender regional lymph nodes, and of these 9 were inguinal or subinguinal and 4 were axillary. In cases 14 and 15 small bilateral inguinal lymphadenopathy was noted and these patients had no tularemic ulcers. The enlarged regional lymph nodes were usually 3 to 6 cm. in diameter and protruded 1 to 3 cm. above the surface of the surrounding skin. They were red, moderately firm and, on palpation, varied in their degree of tenderness (fig. 5). Later, in some instances, they became soft and fluctuant as the result of abscess formation.

Fig. 2 (case 9).—Multiple early tularemic lesions of lower extremity.

In case 1 pleural effusion and pneumonia developed. Case 10 showed nuchal rigidity and a positive Kernig's sign. Cerebrospinal fluid was examined and found to be normal. No rashes were noted.

COURSE AND TREATMENT

There were no deaths in our series. The severity of the disease varied widely among the 15 patients. In some instances the disease was a very mild febrile illness; in others it was moderately severe, prolonged

Fig. 3 (case 6).—Advanced stage of tularemic ulcer of lower extremity.

and debilitating. There was frequently an afebrile period after three or four days followed by a secondary rise in temperature.

In case 1 a pleural effusion and pneumonia developed. Continuous oxygen inhalations were provided and a thoracentesis was performed, 200 cc. of dark, straw colored clear fluid being obtained. No other complications occurred.

The leukocyte count varied from normal to a leukocytosis of 16,650 per cubic millimeter. Positive blood agglutinations[12] (complete) ranged from a dilution of 1:320 to 1:1,280, as shown in the table. Diagnostic skin tests were not done. No attempts were made to culture the organism from blood, pleural fluid or pus from incised abscessed glands.

Six patients had received either sulfathiazole or sulfadiazine in varying amounts prior to admission to our hospital. The drug was discontinued on admission. The use of metaphen has been reported by Barthelme.[13] Ten cc. of a 1:1,000 aqueous solution of metaphen was given intravenously to patient 1 on three consecutive days. We were unable to draw any conclusions as to the beneficial effect of metaphen. Although this type of case usually carries an appreciable mortality, recovery was uneventful in case 1.

In 3 cases abscesses developed in the regional lymph nodes. These became fluctuant and obviously would have drained spontaneously had we not resorted to surgical incision and drainage. This procedure is advisable, we believe, when fluctuation occurs and spontaneous drainage is imminent.

Other than the use of metaphen in 1 case, the surgical drainage of abscesses in 3 cases and the chance use of sulfonamides in 6 cases prior to and 2 cases after admission, no attempt was made to treat the patients other than symptomatically.

COMMENT

The cases we report emphasize the importance of the tick as a cause of human tularemia. The tick, we believe, is too frequently thought of primarily as an intermediate host of Rocky Mountain spotted fever; however, the tick is receiving more recognition in recent literature in connection with Colorado tick fever, American Q fever, tick paralysis and Bullis fever. From a statistical point of view we noted with interest that during the same thirty day period our 15 cases of tularemia were seen only 2 cases of Rocky Mountain spotted fever were admitted to the hospital. Thus tularemia in this particular area was numerically the more prominent of the two tick borne diseases.

In individuals suffering from tularemia due to handling rodents (rabbits principally) the lesions are usually on the upper extremities. In contrast to this, tularemic lesions secondary to the bite of an infected tick are more generalized in distribution, with a predominance of lesions on the lower extremities. In our

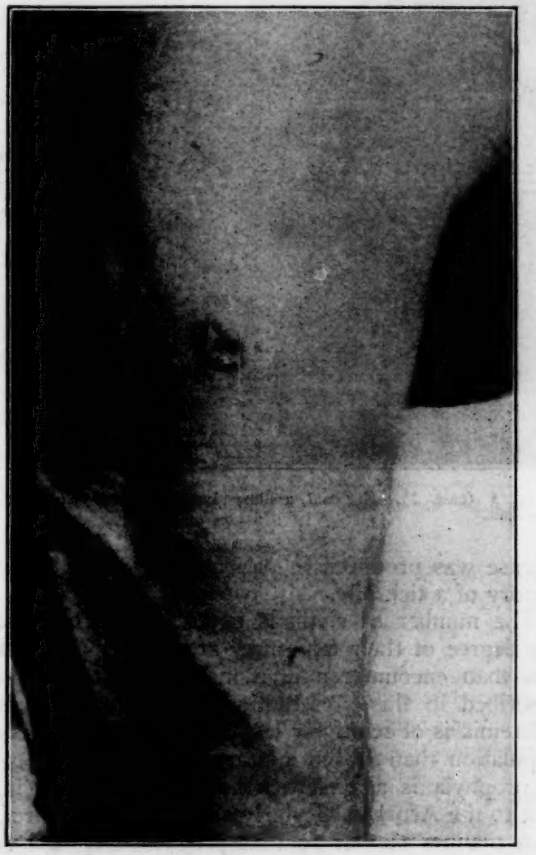


Fig. 4 (case 7).—Healing tularemic ulcer of right arm.

patients, none of whom had had contact with rodents, the distribution was 9 on the lower extremity and 4 on the upper extremities.

Early in our experience with these cases of tularemia we suspected D. variabilis (the dog tick) of being the transmitting agent. Later, however, Dr. Norman H. Topping of the United States Public Health Service

12. Agglutination tests were performed by Dr. W. C. Williams, Commissioner of Public Health, Nashville, Tenn.

13. Barthelme, F. L.: Metaphen Therapy Intravenously for Tularemia, J. Chemotherapy **14**: 117-119 (Jan.) 1938; Metaphen (Mercury Preparation) Intravenously for Tularemia, Illinois M. J. **72**: 317-320 (Oct.) 1937.

carried out a tick survey [14] in an area in which an especially large number of our patients had been bivouacked prior to their illness. He reported that all specimens were Amblyomma americanum (the lone star tick).[15] The ticks collected in this survey were tested by Francis [15] and by Parker.[16] Neither was able to demonstrate P. tularensis by culture. D. variabilis is a proved transmitting agent and is known to be present in the area. It would seem justifiable, irrespective of the results of the survey, to suspect that either or both types of ticks were the transmitting agents among the soldiers involved.

Presumably the infected tick bites its host and feeds for an undetermined period before transmission of the disease occurs. The infectious agent can penetrate the unbroken skin, however, and it is theoretically possible that simple contact of the ticks or the accidental crushing of the tick could cause transmission of the infection. This might explain the method by which the disease was produced in patients not giving a definite history of a tick bite.

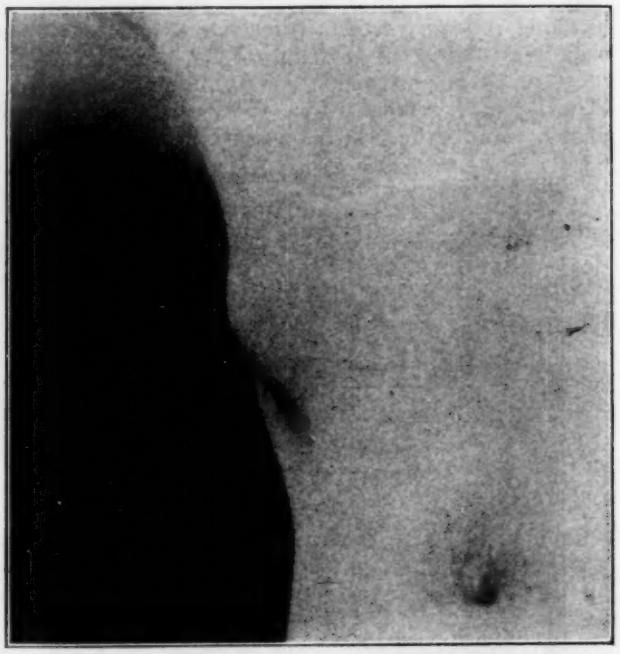


Fig. 5 (case 7).—Regional axillary lymphadenopathy in a case of tularemia.

The number of civilians exposed to tick bites and the degree of their exposures are usually considerably less than encountered in a military problem such as described in this presentation. Therefore tick borne tularemia is of relatively less importance in the civilian population than in the military service. The problem of prophylaxis against tick borne tularemia is important to the Army particularly and should be approached in a manner similar to that prescribed by the Army for prevention of Rocky Mountain spotted fever. It is suggested that tick infested areas be avoided. Failing this, one should remove ticks from one's clothing and body at least once daily. When soldiers are bivouacked in a tick infested region a thorough inspection of the entire body should be made. Soldiers may be paired off and each assist in the thorough inspection of the other's body for the presence of ticks. Ticks should be removed by tweezers or with cotton saturated with iodine. The tick should not be crushed with the bare fingers. The site of the tick bite should be painted with iodine and the hands washed thoroughly after the removal of ticks. One cannot rely on one's sensorium to determine when ticks are attached, as there is frequently an insignificant degree of pain and irritation.

During the forty-five days following the period covered by our report, there occurred 11 additional cases of tularemia.[17] The number of cases may seem relatively small as compared with the number of hospitalizations due to all other causes combined. However, each case of tularemia requires, as a minimum, approximately six to seven weeks of hospitalization and convalescence. The number of days lost due to this disease is obviously great.

CONCLUSION

Fifteen cases of tick borne tularemia in soldiers from an Army maneuver area in Tennessee were seen between the dates of May 14 and June 12, 1943 and presented typical clinical findings of tularemia. The diagnosis was made by clinical picture on admission, a history of exposure to ticks in nearly all instances, a negative history of contact with rodents, a typical clinical course and positive blood agglutinations for P. tularensis in 14 of the 15 cases. General supportive treatment was given in all cases, no serologic preparations were used, and all patients recovered. One patient developed a lobar pneumonia and a pleural effusion regarded as specific. Nine cases were of the ulceroglandular type and 6 of the glandular type.

REPORT OF CASES

Case 1.—A white man aged 23 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of cellulitis of the left scapular area and left axillary lymphadenopathy. He remembered removing a tick from the left shoulder, May 16. A day later he felt ill and had a chill followed by a temperature of 104 F. An ulcer developed on the left shoulder blade followed by tender left axillary lymph nodes. Physical examination revealed an ulcer over the left scapula and very large, tender left axillary lymph nodes. The chest was normal. His fever was septic in type, reaching 103 F. daily for eight days, after which it decreased to 100-101 F. On June 8, following a sudden turn in bed, he became dyspneic and coughed considerably, and his temperature rose to 104 F. Development of a tularemic pneumonia or enlarged hilar lymph nodes causing respiratory embarrassment was suspected. An x-ray of the chest revealed a pneumonia of the right lower lobe. A thoracentesis was performed at which 200 cc. of a dark, straw colored, clear fluid was obtained. A few leukocytes and some cellular débris were noted on microscopic examination. The patient was given continuous inhalation of oxygen. In addition, 10 cc. of a 1:1,000 aqueous solution of metaphen was given intravenously on June 12, 13 and 14. The patient gradually became less dyspneic, improved generally and made a slow but uneventful recovery. The blood agglutination for tularemia was positive in a dilution of 1:640 on June 7. The diagnosis was tularemia, ulceroglandular type, complicated by a lobar pneumonia and pleural effusion, probably specific in type.

Case 2.—A white man aged 26 entered the Evacuation Hospital on May 14, 1943 with a transfer diagnosis of a severe cellulitis of the left leg, cause undetermined. History revealed that he had become ill about May 4 with influenza-like symptoms. Simultaneously he noted a small "pimple" on his left leg which, instead of "coming to a head," developed into a

14. Topping, N. H.: Personal communication to the authors.
15. Bayne-Jones, Stanhope: Personal communication to the authors.
16. Parker, R. R.: Personal communication to the authors.
17. Williams, W. C.: Personal communication to the authors.

small ulcer and was accompanied by a painful swelling in the left subinguinal region. Fever was noted. Physical examination revealed the presence of enlarged, chronically infected tonsils, an ulcer 1 cm. in diameter on the medial aspect of the lower third of the left leg and an erythematous tender mass just below the left inguinal ligament, approximately 3 cm. in diameter. The temperature was 101 F. Examination was otherwise negative.

The leukocyte count on May 15 was 16,650. He was given 60 grains (4 Gm.) of sulfanilamide daily for four days. Blood agglutination for tularemia was positive in a dilution of 1 : 1,280 on June 1. His fever of 101-103 F. persisted for five days and dropped by lysis to near normal levels for several weeks. By June 7 the mass in his left groin had become fluctuant, and surgical incision was carried out with the evacuation of much pus. His convalescence was uneventful. The diagnosis was tularemia, ulceroglandular type.

CASE 3.—A white man aged 23 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of an ulcer of the left leg probably due to a tick bite. History revealed that on May 16 he had awakened suffering from severe malaise, fever of 105 F., swollen glands in the left groin and a feeling that "his bones would break." He had removed many ticks from his body during the days preceding admission to the hospital. On May 18 he noted a small ulcer on his left leg, which increased in size until one week prior to admission, when some improvement was noted. Physical examination revealed a temperature of 104 F., a punched out ulcer 1.5 cm. in diameter on the left leg and a large mass of lymph nodes in the left subinguinal region measuring 3 by 5 cm. in diameter, firm and indurated but with a fluctuant area in the center. The skin over the mass was red. Blood agglutination for tularemia was positive in a dilution of 1 : 320 on June 15. Convalescence was uneventful. The diagnosis was tularemia, ulceroglandular type.

CASE 4.—A white man aged 21 entered the Evacuation Hospital on June 7, 1943 with a transfer diagnosis of influenza. History revealed the onset of illness on June 2, when the patient awakened with a high fever and pronounced malaise. He was admitted to a hospital immediately. Two days later he noticed a small furuncle on the medial surface of his right leg and a large tender mass in his right groin. He knew of no tick bite. On admission to our hospital the temperature was 102.5 F. There was a small punched out ulcer 1 cm. in diameter in the midportion of the medial aspect of the right leg. In addition there was a large nonfluctuant mass 3 by 3 cm. in the right subinguinal region. Examination was otherwise negative. The leukocyte count was 8,400 and the urinalysis was normal. Blood agglutination for tularemia was positive in a dilution of 1 : 320 on June 15. Our period of observation of the patient was terminated abruptly after one week, at which time the patient was still febrile. The inguinal lymphadenopathy had increased in degree. A report to us on his progress indicated that the patient made an uneventful recovery. The diagnosis was tularemia, ulceroglandular type.

CASE 5.—A white man aged 22 entered the Evacuation Hospital on June 12, 1943 with a transfer diagnosis of an ulcer of the left flank secondary to a tick bite. History revealed that on June 8 he had found a tick on the lower left chest wall. Two days later he experienced a chill followed by fever, and a tender mass developed in the left axilla. Physical examination on admission was negative except for a punched out ulcer 2 by 3 cm. in diameter on the lower left chest wall and a pronounced left axillary lymphadenopathy, which was tender. He was afebrile during our observation. The blood agglutination was positive in a dilution of 1 : 1,280 on June 29. Our observation of the case was limited to five days, but subsequent reports indicated that convalescence was satisfactory and uneventful. The diagnosis was tularemia, ulceroglandular type.

CASE 6.—A white man aged 25 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of acute gastroenteritis. The history revealed that he had first reported ill with diarrhea, which started suddenly on May 24 and caused a fever of 106 F. He was treated with sulfaguanidine and bismuth subcarbonate and on May 28 was admitted to our hospital. On admission the chief complaints were fever and general malaise; the diarrhea had ceased and the stools were formed. The positive physical findings included a small healing superficial abrasion on the left leg as well as one on the right leg. The latter appeared inflamed, was 3 by 5 cm. in diameter and was surrounded by small satellite pustules. There was a very large mass in the right subinguinal region interpreted as due to femoral lymphadenopathy. Urinalysis was negative. The leukocyte count was 8,150, with a normal differential. The lesion on the right leg underwent further necrosis, developing into a ragged ulcer. There was a drop in fever from 103 F. to normal followed by a secondary rise maintained for several days. The blood agglutination for tularemia was positive in a dilution of 1 : 640 on June 7. Recovery was satisfactory when the patient was last seen and it did not appear that the subinguinal mass would become fluctuant. The diagnosis was tularemia, ulceroglandular type.

CASE 7.—A white man aged 25 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of a possible tularemia. History revealed that he had had tick bites on his body and right forearm about May 19. Shortly thereafter he had a chill associated with a fever of 104 F., followed by pain under his right arm and a very severe headache. He was hospitalized for ten days at another hospital and released only to suffer a recurrence of his fever. On admission to our hospital the patient was subacutely ill, with a temperature of 101 F. There were two small punched out ulcers on his right forearm and a large tender nodule in the right axilla identified as an enlarged lymph node. Blood agglutination for tularemia was positive in a dilution of 1 : 320 on June 1. The nodule in the right axilla underwent gradual resolution and an uneventful recovery ensued. The diagnosis was tularemia, ulceroglandular type.

Laboratory Data

Case No.	Tick Bite	Ulcer	Lymph Nodes *	Agglutination
1	Yes	Yes	3	June 2 1:80 June 7 1:640
2	No	Yes	4	June 1 1:1,280
3	Yes	Yes	3	June 1 Negative June 7 Negative June 15 1:320
4	No	Yes	3	June 15 1:320 June 30 1:2,560 (partial)
5	Yes	Yes	3	June 15 Negative June 29 1:1,280
6	No	Yes	4	June 1 Negative June 7 1:640
7	Yes	Yes	3	June 1 1:320
8	No	Yes	4	June 1 1:1,280
9	Yes	Yes	4	June 15 Negative Not repeated
10	Yes	No	3	June 15 Negative June ? 1:1,280
11	Yes	No	4	June 7 1:320
12	Yes	No	4	June 1 Negative June 7 1:40 June 15 1:1,280
13	Yes	No	4	June 1 Negative June 7 1:640
14	Yes	No	1	June 15 Negative June 26 1:640
15	No	No	2	June 7 1:160 June 15 1:1,280

* Graded according to size, grade 1 representing the smallest and grade 4 the largest.

CASE 8.—A white man aged 25 entered the Evacuation Hospital on May 20, 1943 with a transfer diagnosis of an ulcer on the lower third of the right leg, the cause of which was undetermined. History revealed that a nonpainful ulcer had been present for one week, starting as a "rising" and later breaking down and discharging pus. There was no history of tick bites or contact with any rodents. Positive physical findings on admission included a single, painless, discrete, punched out ulcer 1 cm. in diameter on the lateral surface of his right

leg, 8 cm. above the ankle. No varicose veins were noted. The leukocyte count was 8,400 with a normal differential. Urinalysis was negative. On May 25 the patient developed a swelling 6 by 8 cm. in diameter in the right inguinal region, about which there was considerable erythema. Fluctuation, questionable at first, became definite, and since it appeared that the abscess would rupture spontaneously surgical incision and evacuation of a large amount of pus was done on June 7. On June 1 blood agglutination for tularemia was positive in a dilution of 1:1,280. His fever never exceeded 99.6 F., and the patient made an uneventful recovery. The diagnosis was tularemia, ulceroglandular type.

CASE 9.—A white man aged 41 entered the Evacuation Hospital on June 10, 1943 with a transfer diagnosis of tick borne tularemia and an undiagnosed neurologic disturbance. The history of the latter is irrelevant. History revealed that several ticks were removed from his right ankle about May 31 and that on June 5 he suddenly developed a high fever and malaise. Physical findings on admission relative to his tick borne disease included a temperature of 101.4 F., a moderate degree of dehydration, an ulcer over the right patella, two ulcers on the posterior surface of the right leg 3 inches below the popliteal space and a small tender mass in the right inguinal region. The leukocyte count was 12,000 and the urinalysis was negative. During his hospital stay the temperature varied between 99 and 102 F. Blood agglutination was negative for tularemia on June 15. He was transferred to another hospital, where a diagnosis of tularemia was accepted clinically but not proved by repeating the agglutination test at a time when it would have been expected to be positive. Subsequent reports indicate that the patient made an uneventful recovery. The impression was tularemia, ulceroglandular type.

CASE 10.—A white man aged 31 entered the Evacuation Hospital on June 11, 1943 with a transfer diagnosis of possible Rocky Mountain spotted fever. History revealed that his initial complaints included general malaise, headaches, backaches, chills and fever. Later, enlarged painful lymph nodes occurred in the right inguinal region. He had removed many ticks from his body. On admission to the hospital he complained of headache and pain in his abdomen, back and right groin. The patient was febrile, with a temperature of 102.5 F.; he appeared acutely ill and moderately dehydrated. There were many "red areas" on his ankles and feet, indicating recent "insect bites." He had no rash about his forearms, wrists, face, hands or soles. An exquisitely tender mass was present in the right inguinal region. There was pronounced nuchal rigidity and a positive Kernig's sign. The leukocyte count was 8,000 with a normal differential. The spinal fluid examination was normal. A diagnosis was made of tularemia with meningismus. He was given 1,000 cc. of 5 per cent glucose in isotonic solution of sodium chloride intravenously and his fever subsided within four days. Blood agglutination for tularemia was positive in a dilution of 1:1,280 on June 28. Subsequent reports from another hospital indicated an uneventful recovery. The diagnosis was tularemia, glandular type.

CASE 11.—A white man aged 32 entered the Evacuation Hospital on June 4, 1943 with a transfer diagnosis of a left axillary lymphadenitis probably secondary to a tick bite. History revealed that he had found and partially removed a tick from his left axilla on May 15. The head apparently remained buried despite attempts made at the aid station to remove it. Ten days later he developed a mass in the left axilla 2 by 5 cm. in diameter and projecting 2 cm. above the surface. On admission the patient was ambulatory and afebrile and did not appear acutely ill. There was no ulcer nor evidence of a recently healed ulcer. The leukocyte count and urinalysis were normal. By June 7 the mass in the left axilla had become fluctuant and was incised. Blood agglutination for tularemia was positive in a dilution of 1:320 on June 7. No fever exceeding 99.6 F. was recorded and the patient made an uneventful recovery. The diagnosis was tularemia, glandular type.

CASE 12.—A white man aged 25 entered the Evacuation Hospital on May 29, 1943 with a transfer diagnosis of tick bites on both lower extremities and the lower trunk. History revealed that the patient had noticed a tick in his left groin on May 8. He removed the tick, but the head remained buried in the skin and subsequent infection about it necessitated surgical incision on May 14. At this time several small "kernels" were noticed in his left groin, which gradually increased in size. On May 26 the patient had a chill followed by a temperature of 103 F. He was admitted to a hospital, given sulfadiazine for two days and then transferred to our hospital. Examination on admission revealed a temperature of 100.4 F., and several tick bites on the extremities and abdomen, one on the left flank being infected. The inguinal glands, particularly on the left, were enlarged and tender. The leukocyte count was 12,300. The patient received sulfadiazine for four days without apparent improvement. His fever subsided gradually to near normal levels after eight days and then rose to 101 F. for several days before subsiding. The blood agglutination for tularemia was positive in a dilution of 1:1,280 on June 15. Convalescence was uneventful. The diagnosis was tularemia, glandular type.

CASE 13.—A white man aged 28 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of nasopharyngitis and acute lymphadenitis of the left inguinal region, the cause of which was undetermined. History revealed that about May 14 the patient had removed several ticks from his legs. On May 23 he was admitted to a hospital because of a sudden onset of pronounced malaise, chills and fever. Several days later he noticed a painful swelling in his right groin, for which he was transferred to our hospital. Physical examination revealed a temperature of 102.6 F., scattered musical rales in his chest, a tender swollen mass in his right inguinal region and two circumscribed indurated areas about 1 cm. in diameter on his left thigh. No ulcer was present. The leukocyte count was 11,000. His temperature decreased from 102.6 F. to normal in four days, remained normal for three days and rose again to remain moderately elevated for the next two weeks. Blood agglutination was positive for tularemia in a dilution of 1:640 on June 7. The patient made an uneventful convalescence. The diagnosis was tularemia, glandular type.

CASE 14.—A white man aged 27 entered the Evacuation Hospital on June 11, 1943 with a transfer diagnosis of fever of undetermined origin. His complaints included fever, headache, pain and swelling in both groins and some diarrhea. The history revealed that these complaints had been present for two days and that he had removed several ticks from his body during the past month, the most recent one being removed two days prior to admission. Positive physical findings included a temperature of 100.6 F., insect bites on his chest, abdomen and legs, and an indurated area in the right groin attributed to a tick bite. There was no ulcer, but the lymph nodes in both groins were enlarged, discrete and tender. On June 26 the blood agglutination for tularemia was positive in a dilution of 1:640. The patient's temperature remained elevated during the period of our observation, but subsequent reports indicated that he made an uneventful recovery. The diagnosis was tularemia, glandular type.

CASE 15.—A white man aged 28 entered the Evacuation Hospital on May 28, 1943 with a transfer diagnosis of nasopharyngitis. History revealed that the patient had been in a region heavily infested with ticks and had removed several from his lower abdomen and thighs. On May 26 he became ill with malaise, chilly sensations and slight pain in the right inguinal region. Physical examination on admission revealed that the patient was febrile and appeared moderately ill. The inguinal nodes were bilaterally enlarged, discrete and slightly tender. On the left side of the abdomen and on the anterior aspect of the upper third of the thigh were found small crusted lesions attributed to tick bites. The leukocyte count was 7,100. The patient's temperature became normal on the third hospital day and remained so until the eleventh hospital day, when the temperature rose to 100.6 F. The temperature remained elevated for two days, after which it again returned to normal and remained normal until discharge from the hospital. No ulcer was seen at any time. Blood agglutination for tularemia was positive in a dilution of 1:1,280 on June 15. The patient made an uneventful recovery. The diagnosis was tularemia, glandular type.

NONMAGNETIC INTRAOCULAR FOREIGN BODIES

HARVEY E. THORPE, M.D.
PITTSBURGH

The greatly increased number of intraocular foreign body cases resulting from the accelerated industrial war effort and the nature of ocular combat injuries makes this subject of special interest to the ophthalmologist today.

With the acceleration of industry has come the employment of huge numbers of unskilled, inexperienced personnel and a relative laxness in protective and preventive measures (goggles, shields, and so on).

There has also been an increase of such cases in civilian life with wider use and misuse of poor quality tools, especially hammers, chisels, hatchets and improvised hand tools. We have seen this in patients coming from the farm and home.

Moreover, the number of nonmagnetic foreign body cases has increased both in industry and in combat. Industry is now making greater use of various nonferrous metals and nonmagnetic alloys. The recognition by German and Italian forces in the early days of the North African desert campaigns that steel land mines and booby traps were readily discovered with magnetic locators resulted in the substitution of copper, other nonferrous metals and even bakelite in their construction, according to Stallard.[1] The resulting explosions of these mines and of other bombs in combat and aerial warfare have caused many new problems for the ophthalmic surgeon.

Whereas the magnet was the miracle tool for the magnetic intraocular foreign body, it was worthless for high manganese steel alloys, for copper, brass, lead, aluminum, wood and other substances. (Frequently the ophthalmologist threw his hands up at seeing a case with nonmagnetic intraocular foreign body. However, with improved x-ray localization and improved surgical technics a number of such eyes can be saved from blindness.)

A number of problems face the ophthalmologist in every case of ocular injury by solid bodies:

1. What should lead one to suspect an intraocular foreign body?
2. What are the external clinical evidences of such?
3. Should x-ray photographs be taken?
4. What is a rapid and simple method of x-ray localization?
5. Are there methods aside from the history to tell one whether one is dealing with a magnetic or a nonmagnetic particle?
6. Should the magnet be used for diagnosis?
7. How should one proceed with nonmagnetic foreign bodies in an attempt to save the globe?
8. What foreign bodies may remain undisturbed?
9. What are useful measures for prevention of infection?
10. What are essential safety measures during operation?
11. What steps can one take to prevent retinal detachment incident to transscleral surgery?
12. What about sympathetic ophthalmia?

Read before the Section on Ophthalmology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Stallard, H. B.: War Surgery of the Eye: Removal of Magnetic Intraocular Foreign Bodies by the Posterior Route, Brit. M. J. 3: 629 (Nov. 28) 1942.

I shall attempt to answer some of the foregoing and other related questions that deal with nonmagnetic intraocular foreign bodies. It does not necessarily follow that an eye containing a piece of copper or brass is doomed and should be treated by enucleation. Measures and technics are available which will save many of these cases, and every resource must be used, especially when both eyes harbor foreign bodies or when only one seeing globe remains.

It is also my purpose in this paper to review the various procedures that I have found useful in removing over seventy nonmagnetic foreign bodies from the cornea, anterior chamber, iris, lens, ciliary body, sclera and vitreous.

HISTORY

To begin with, a detailed history of injury is extremely important. Any eye that was injured while the patient was hammering, drilling or working with moving machinery or was exposed to flying particles from another workman's tools, to an explosion or to the shattering of any solid (glass, wood or metal or the like) should be considered as possibly harboring an intraocular foreign body. A careful description and examination (where possible) of the tools and objects that were employed at the time of injury helps in differentiating magnetic from nonmagnetic fragments. Stallard,[1] writing about the North African desert campaign, found that the analysis of exploded bomb fragments lodged in the face gives a clue as to the nature of the possible intraocular foreign body. We may thus often have a clue as to whether a foreign body is magnetic or nonmagnetic or whether it is glass or some other substance. At times it is possible to discover in questioning the patient the approximate size of the offending particle and the course it took toward the eye, coming from below or above or from the right or left.

The removal of foreign material from the conjunctival sac or corneal surface should by no means lull our senses into dismissing such a case without further careful investigation. Too often does one see instances in which a so-called corneal foreign body was removed or nothing was found and the patient dismissed, only to turn up later with siderosis, cataract or blindness.

The Clinical Examination.—The visual acuity of both eyes should be recorded when possible. A careful examination of the entire anterior segment for evidence of perforation is paramount. This must be done with both loupe and slit lamp microscope. (A drop of pontocaine facilitates this.) A perforation of Bowman's and especially Descemet's membrane leaves permanent telltale evidence. A small bloody blotch on the sclera shortly after injury may be the only evidence of perforation. A further careful search with the ophthalmoscope gives valuable information about the iris, lens, vitreous and retina. With the instruments mentioned one can often follow the trajectory and course of the flying particle in the eye and thus help to localize it. One should remember, however, that occasionally flying particles may recoil from the sclera into an unsuspected part of the vitreous chamber.

The examinations also reveal degenerative and chemical pigmentation changes such as siderosis or chalkosis.

A knowledge of the tension in early injuries gives information about the presence of a leaking wound. It is of course easier to recognize and diagnose cases shortly after injury. This is particularly true in small

scleral perforations. which may heal within a few days and defy recognition.

The transilluminator is valuable in discovering iris holes and even holes in the ciliary body and choroid.

Both eyes must be carefully examined. It has happened thrice in my experience that a patient coming in with an injury of one eye harbored a foreign body in the other. All methods of examination should be employed.

X-RAY LOCALIZATION

In any case in which there is the possibility of an intraocular foreign body being harbored x-ray examination should be made first for diagnosis and then for localization. And every case in which there is a history of hammering, shattering or explosion should be so suspected, even when clinical examination is negative. When the diagnostic x-ray is negative when taken posteriorly to anteriorly in the chin-nose position it should be repeated with several different exposures so as to give films of different densities and angles. Small foreign bodies sometimes show up in this manner. Of course only x-ray opaque substances, such as metals, show up. Glass, wood and plastics do not show up in x-ray films of the eye. An extremely valuable procedure for foreign bodies in the anterior segment is Vogt's [2] "skeleton free or bone free" method for soft tissue technic. A dental film or a small special shaped film is held along the side of the nose and pressed into the inner canthus. The lids are drawn apart and a profile x-ray film of the exposed globe is taken from the temporal side. The film can also be pressed into the lower fornix and the eye rayed from above. This method shows up minute foreign bodies in the anterior chamber angle or anywhere in the anterior segment. It will even show glass if taken with soft rays. More of the anterior half of the eyeball can be exposed by producing artificial proptosis with 2 to 4 cc. of procaine hydrochloride or isotonic solution of sodium chloride injected retrobulbar. Comberg's [3] contact lens method of x-ray localization has deservedly gained in popularity in recent years. It is simple and accurate if performed with reasonable care. Its chief proponent in this country has been Pfeiffer.[4] A drop of tetracaine hydrochloride 0.5 per cent is instilled in the conjunctival sac. The contact lens bearing four lead markers is inserted between the lids and two exposures are taken, viz. a lateral exposure with the involved eye nearest the film and a posteroanterior exposure with the head in the chin-nose position. For the posteroanterior view the patient looks into a small pocket mirror on the x-ray table at the reflection of either his injured or his healthy eye. If the eyes are not parallel or only one eye is present, a cover glass on a black cardboard triangle wedge base serves as an angle mirror in which can be seen an adjustable reflected light source, such as a pocket flashlight. The purpose, of course, is to have the visual axis perpendicular to the film and the central x-ray passing through the visual axis. The chief objection to the Comberg lens is that it does not always lie coaxially with the cornea; another is its fragility when dropped. In the past three years I have frequently used a plastic [5] localizing shell, similar to the Comberg lens. To obviate displacement of the lens on the globe, I recently modified the Comberg lens by having suture holes drilled near the lens edge, so that it may be anchored with episcleral sutures. A vent hole was also placed in the corneal portion near the limbus to help break suction adherence, which occasionally impedes removal of the contact lens. The plastic lens is useful if one is interested in localization only. The glass lens, however, has certain advantages for visualization of the globe. It outlines the anterior portion of the globe and when studied in stereoscopic [5] lateral and posteroanterior views gives one an excellent idea as to the topographic location of the ocular foreign body. It has given me a better tridimensional concept. On reading a draft of Spaeth's [6] paper before this section two years ago, I was impressed with the value of stereoscopic x-ray pictures of the eye when air had been injected into Tenon's space according to the method of Gasteiger and Grauer abroad and Spackman [7] of Philadelphia. This air injection method we combined with the Comberg glass lens.[5] The entire globe was thus outlined when viewed stereoscopically, and borderline cases of double perforation became more readily diagnosed.

X-ray localization must be extremely accurate, for it controls the method of approach and the site of the globe incision in these cases. The Comberg and Vogt methods are simple, rapid and accurate. They can be performed with a minimum of apparatus. Brigadier Graham's x-ray localization method [8] with a 12 mm. diameter silver wire ring sutured to the limbus has proved valuable in the handling of eye injuries in the African desert campaign. Spaeth [6] uses silver rings of several diameters sutured to the globe for x-ray localization. Sweet's localizer is an accurate method requiring special apparatus.

An eye may harbor two or more foreign bodies. This happens occasionally in civilian life and more frequently in combat injuries, and sometimes this complicates localization. Stokes mentions that in 300 cases of intraocular foreign bodies the x-ray examination was negative in 2.5 per cent of cases. It is possible that Vogt's method or variation of exposure technic might show up some of these negative cases (which evidently harbored minute or flat foreign bodies lying parallel with the horizontal plane of the eye). The methods used formerly for differentiating nonmagnetic from magnetic foreign bodies aside from the history and examination of tools and analysis of fragments taken from the face [1] or other parts of the body in explosion injuries consisted of the magnet test. This is a dangerous method because the magnet during the test may pull the foreign body into the ciliary or lens or may wedge it deeper. The magnet should never be used as a test except when the x-ray localization is completed and the method of approach is decided on, and then only in the operating room when one is ready to proceed with surgery.

THE BERMAN LOCATOR

We have in the past six months used a Berman locator.[9] This is an extremely valuable instrument, first, for determining whether an intraocular foreign

2. Wieser, S.: Skeleton Free X-Ray of the Anterior Segment by Professor Vogt's Method, Klin. Monatsbl. f. Augenh. **81**: 234 (Aug. 31) 1928, in Berens, C.: The Eye and Its Diseases, Philadelphia, W. B. Saunders Company, 1936, pp. 936-938.
3. Comberg, W.: A New Method for X-Ray Localization in the Eyeball, Arch. f. Ophth. **118**: 175, 1927.
4. Pfeiffer, R. L., in discussion on Spaeth,[6] p. 55.
5. Thorpe, H. E., in discussion on Spaeth,[6] p. 56.
6. Spaeth, E. B.: Removal of Metallic Foreign Bodies from the Eyeball and the Orbit, Tr. Sect. Ophth., A. M. A. 1942, p. 38.
7. Spackman, E. W.: X-Ray Diagnosis of Double Perforation of the Eyeball After Injection of Air into the Space of Tenon, Am. J. Ophth. **15**: 1007 (Nov.) 1932.
8. Stallard,[1] p. 630.
9. Berman Locator—Instructions published by Waugh Laboratories, 420 Lexington Avenue, New York, makers of the locator.

body is magnetic and, second, for localizing the magnetic foreign body. It was used originally at Pearl Harbor by Moorhead [10] in December 1941. Minsky [11] recently described its application for the transscleral approach. I have found it valuable for localization in 4 magnetic cases and found its usefulness in differentiating a nonmagnetic vitreous foreign body. It has not proved useful in localizing small nonmagnetic foreign bodies. My interest was attracted to it by having seen it used at the New York Eye and Ear Infirmary in the fall of 1943.

Glass and other chemically inert foreign bodies, such as aluminum and stainless steel alloys, apparently do not irritate the eye. And when they are in relatively inaccessible positions or when they do not produce mechanical irritation or pressure they are best left alone.

Copper and its alloys and most iron particles are extremely dangerous to the eye. It is well to follow the generally accepted dictum ably expressed by Snell [12] to employ every reasonable attempt to remove a nonmagnetic foreign body, if the surgery does not cause excessive mutilation of the eye. It is well to see these cases early, to do all necessary examinations immediately and then to decide whether surgery or expectant conservative treatment had best be followed for the time being. Where an attempt at removal of multiple intraocular foreign bodies would mutilate the globe, discretion would prove the better part of valor.

PREPARATION OF PATIENT FOR SURGERY

A barbituric sedative, such as 1½ grains (0.1 Gm.) of pentobarbital, is given one hour before operation, if it is to be done under local anesthesia. The skin is cleansed in the usual manner.

The local anesthesia and akinesia is performed as follows:

1. Topical instillation of 3 drops of 0.5 per cent tetracaine, or pontocaine, hydrochloride at intervals of one minute.

2. Subconjunctival injection of 2 per cent procaine hydrochloride containing 1/30,000 epinephrine. It is often valuable to inject the superior rectus.

3. Retrobulbar injection of 1 cc. of 2 per cent procaine with 1/30,000 epinephrine between the lateral and the inferior recti.

4. Akinesia by (*a*) O'Brien's method: injection 10 mm. in front of the ear notch (incisura intertragica), 3 to 4 cc. of 2 per cent procaine with 1/75,000 epinephrine (1 minim of 1/1,000 epinephrine in 5 cc. of procaine); (*b*) VanLint's method; injection of aforementioned procaine and epinephrine mixture at the lateral border of the orbit.

5. Lateral canthus injection of 0.25 cc. of procaine-epinephrine mixture to facilitate canthotomy if necessary.

For general anesthesia, sodium pentothal intravenously or solution of tribromoethanol with ether proves adequate.

Retrobulbar injection and akinesia may be omitted when the globe is not to be opened.

CORNEA

The method of removal of foreign bodies from the cornea depends on their depth, which is determined with the narrow beam of the slit lamp. An angled spud working at the edge of the embedded corneal foreign body so as to pry it out is a relatively simple procedure. Where there are multiple foreign bodies the 1 millimeter curet is extremely useful in their removal.

When a sliver of brass or wood lies between the corneal lamellas it can be extracted with a splinter forceps having special teeth. I have found this useful in the past ten years (fig. 2). Sometimes it becomes necessary to cut down through the overlying lamellas and to pry the splinter loose. It is very important to remove wood splinters or thorns thoroughly, as they cause prolonged irritation. Multiple small fragments of coal or glass completely enclosed in corneal stroma are well tolerated and may remain undisturbed.

Fragments in the pupil zone of the cornea that have penetrated partly into the anterior chamber are best handled by following Kuhnt's suggestion. The pupil is contracted with physostigmine. A narrow keratome such as Agnew's or Castroviejo's is inserted into the anterior chamber across the pupil zone and anchored in the opposite side to prevent injuring the lens capsule. One then cuts down with a knife needle until the foreign body is reached (fig. 3). It is then removed with the aforementioned corneal splinter forceps. Penetrating fragments outside the pupillary zone are reached by performing a corneal section with a Graefe knife or keratome and scissors. The corneal flap is turned inside out and the projecting splinter is removed with the aforementioned forceps (fig. 4). The corneal incision is closed with previously inserted corneoscleral sutures. A conjunctival flap may be prepared previous to performing the corneal section.

ANTERIOR CHAMBER

Nonmagnetic foreign bodies lying loose in the anterior chamber can be removed through a keratome incision in the particular quadrant where the foreign body lies. The anterior chamber should always be restored with the chamber irrigator (isotonic solution of sodium chloride). If the corneal incision is near the limbus, a corneoscleral suture should be used to prevent iris prolapse. The Mendoza type of suture or a mattress suture may be employed. The Burch corneal pic and the Hoffman pic are useful in suturing corneal lacerations. Atraumatic needles are very helpful.

CHAMBER ANGLE

Most foreign bodies in the anterior chamber lodge in the lower angle, and sometimes they are wedged there and covered by exudate. They can be seen with the diagnostic chamber angle contact lens if they lie behind the scleral ledge. To remove them, keratotomy is made to the side and the foreign body is pried loose with a blunt Tyrell iris hook (fig. 5 *a*). After which it is removed with the serrated nontoothed iris or clot forceps. Lancaster has suggested making a corneal section forward with a narrow Graefe knife and then reaching into the angle with the clot forceps (fig. 5 *b*). Meller suggested the application of a corneoscleral trephine over the foreign body and hinging the button (fig. 5 *c*). After the foreign body is removed with forceps, the corneoscleral button can be replaced with a suture.

IRIS

Nonmagnetic foreign bodies embedded in iris tissue should be disentangled with forceps through a keratome incision. If this is impossible, or when the iris is traumatized excessively, the portion of iris containing the foreign body should be excised.

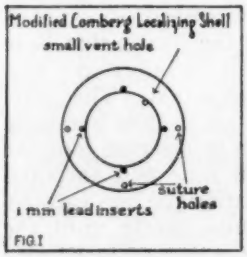
LENS

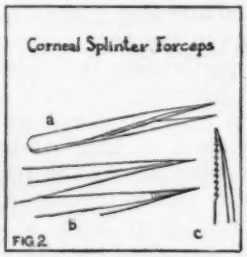
Foreign bodies in the lens cause traumatic cataract. Sometimes this is slow in developing. However, because of the low metabolic lens activity, lenticular foreign

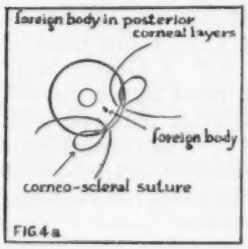
10. Moorhead, J. J.: A Foreign Body Finder: The Locator, J. A. M. A. **121**: 123 (Jan. 9) 1943.
11. Minsky, H. H.: Transscleral Removal of Intraocular Foreign Body with the Aid of the Berman Locator, Arch. Ophth. **31**: 207 (March) 1944.
12. Snell, A. C.: Industrial Eye Injuries from Foreign Bodies, in Kuhn, H.: Industrial Ophthalmology, St. Louis, C. V. Mosby Company, 1944, p. 147.

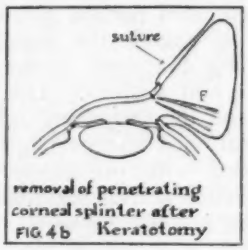
bodies are well tolerated. To remove such fragments one might employ Donovan's [13] method, described before this section in 1925. A gage 19 hypodermic needle is inserted into the lens through a small keratome incision up to the foreign body, and suction made with the attached syringe plunger. On the other hand, the usual practice is to wait until the lens becomes opaque and deliver it in capsule. Older patients may have the lens extraction with capsule forceps and pressure from without. In younger patients with a tough zonule it is safer to use the Weber loop or a flat lens spoon at the upper equatorial portion of the lens with counter pressure below according to the method of Pagenstecher (fig. 6). A small amount of vitreous loss may take place at times. But this is guarded against by previously inserted corneoscleral sutures.

If the foreign body lies near the anterior capsule and one is timid about the intracapsular extraction, it is good practice to grasp the nonmagnetic particle and its overlying capsule with the toothed capsule forceps. If the foreign body is lost in the depths of the lens, it may be located with the transilluminator applied to the sclera. (The pupil should be maximally dilated.)









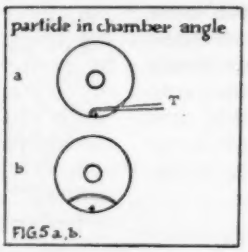
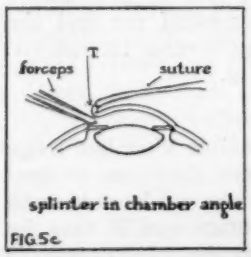
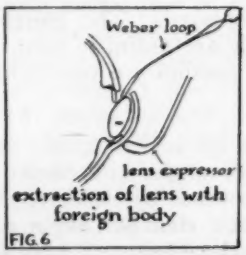
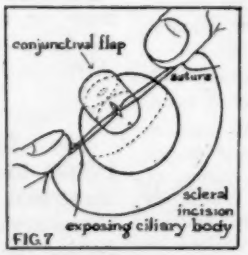
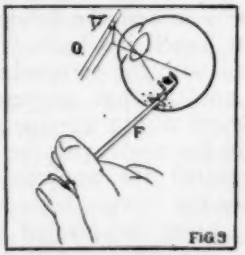


Fig. 1.—Modified Comberg localizing shell made of glass or plastic material. Three suture holes permit anchoring to episclera. Fig. 2.—Author's corneal splinter forceps: *a*, general appearance of forceps; *b*, larger view showing sharp points and direction of serrations; *c*, lateral view illustrating serrations pointing backward. These toothlike serrations allow a good grasp. Fig. 3.—Kuhnt's method of perforating corneal splinter in pupil zone amplified by use of corneal splinter forceps. Fig. 4.—*a*, limbal incision and sutures for peripherally located penetrating corneal foreign body; *b*, second step: removal of splinter from everted cornea with forceps *F* through a keratotomy. Fig. 5.—*a*, use of Tyrell hook through a keratotomy to dislodge a particle wedged in the chamber angle; *b*, Lancaster's method performing keratotomy forward, so that a forceps can reach into the chamber angle.









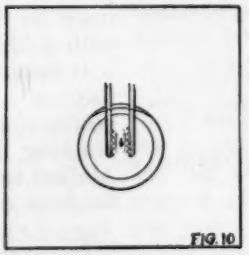


Fig. 5 *c*.—Meller's method for reaching a nonmagnetic foreign body in the chamber angle with aid of hinged trephine button, *T*. Fig. 6.—Intracapsular extraction of lens containing foreign body, using Weber's wire loop and pressure from without. Fig. 7.—Method of exposing ciliary body with Mendoza suture to remove particle located in ciliary. Fig. 8.—Vitreous self-closing foreign body forceps. Fig. 9.—Method of removal of nonmagnetic foreign body from vitreous under ophthalmoscope control, showing scleral incision and barrage. Fig. 10.—Toothed capsule forceps used to grasp piece of capsule and foreign body beneath it.

FOREIGN BODY IN POSTERIOR AQUEOUS CHAMBER

Accurate localization is essential. A Gayet incision is made with Lundsgaard's knife. This can be done externally or subconjunctivally with a previously dissected flap. The McLean corneoscleral suture is inserted. Iridodialysis at the root is performed with pointed scissors and the iris is pulled out of the way with the blunt Tyrell hook. The corneal flap is lifted up. The foreign body is grasped with the serrated blades of the clot forceps. It is sometimes seen enveloped in exudate.

NONMAGNETIC PARTICLE IN CILIARY BODY

Here again accurate x-ray localization is paramount. A conjunctival flap including Tenon's capsule is dissected from 10 mm. behind the limbus forward. The sclera is exposed and the exact spot for incision marked with gentian violet. A meridional incision with a number 15 Bard Parker blade is made in the sclera overlying the foreign body. This is facilitated by inserting a Mendoza suture after the first few strokes and having the assistant pull up on both sides of the loop. This helps to pull the sclera away from the ciliary body. Burch's method for making a scleral incision may be used by having parallel episcleral sutures, one on each side of the incision and drawing up on them. The incision is made carefully and deliberately. It is made 4 to 5 mm. long and may be enlarged with Stevens scissors. If one now pulls up on the scleral sutures so as to open the incision, the foreign body may appear in the wound (fig. 7). For hemostasis it is now useful to place a drop of thromboplastin and a drop of 1 : 100 solution of epinephrine between the lips of the incision. One waits a few moments for the foreign body to appear. If the foreign body lies deeper in the ciliary body, that can now be incised radially. If the particle is seen it can be seized with serrated dressing forceps. Aid may be had from the Lancaster or Lange transilluminator applied to the opposite side of the globe. If the ciliary body prolapses, it is abscised. The incision is closed with the aforementioned Mendoza suture. The conjunctiva is replaced and closed with running silk sutures. I have employed both methods

13. Donovan, J. A.: Foreign Bodies in Lens: A New Method of Removal, Tr. Sect. Ophth., A. M. A., 1924, p. 106.

successfully on several occasions. In passing, one should mention the pars plana approach according to Verhoeff's [14] and Fralick's [15] methods for magnetic particles.

FOREIGN BODY IN VITREOUS

An eye with a piece of copper or brass in the vitreous was formerly given up as lost. Today instruments and methods are available for salvaging many such eyes. Several methods are applicable, depending on the location of the foreign body and on its visibility with the ophthalmoscope. The prognosis is affected materially by its location. Foreign bodies close to the optic nerve offer a poorer prognosis.

VITREOUS: FIRST METHOD

When the lens is clear and the foreign body is visible with the ophthalmoscope without excessive rotation of the globe it can be approached through a meridional transscleral incision and grasped with the author's [16] self-closing vitreous forceps (figs. 8 and 9). This forceps is constructed so that it has no moving blades in the incision and thus does a minimum of trauma to the neighboring retina and choroid.

The conjunctiva and Tenon's capsule are dissected from the globe after the quadrant of location of the foreign body is selected. The point of election for scleral incision is marked with gentian violet. A rectangular area 8 by 4 mm. is now outlined, with scleral surface coagulations (fig. 10) to prevent retinal detachment. An I or T shaped incision is made with the long axis meridionally in the sclera by gradual dissection with a number 15 Bard Parker blade. An episcleral suture on each side of the incision pulls the sides of the incision up. The choroid and retina are opened with the diathermy knife. The incision can, however, be made with a shallow thrust of the Graefe knife. The length of the incision need not be more than 4 to 6 mm., depending on the size of the foreign body. Sometimes it appears in the wound as glistening metal or covered by exudate. In such a case it is grasped with small

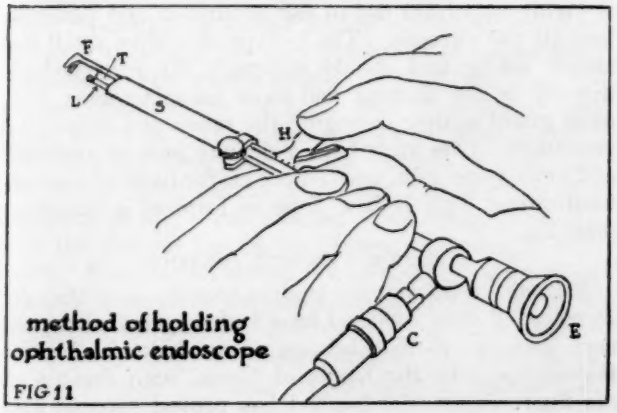


Fig. 11.—Method of holding ophthalmic endoscope during operation: *F*, forceps blades; *H*, forceps operating hand; *T*, telescope; *L*, miniature lamp; *S*, adjustable sheath; *E*, eyepiece; *C*, electric connection to battery rheostat.

forceps and the scleral incision immediately closed with the aforementioned sutures. If it does not appear in the wound, one visualizes the particle with the ophthalmoscope and grasps it with the author's self-closing vitreous chamber forceps introduced through the incision. The foreign body is removed and the incision closed as described. The wound may be touched with trichloroacetic acid or 95 per cent phenol [17] (or with the fused potassium hydroxide pencil and neutralized with 3 per cent acetic acid). The conjunctiva is closed with a running suture.

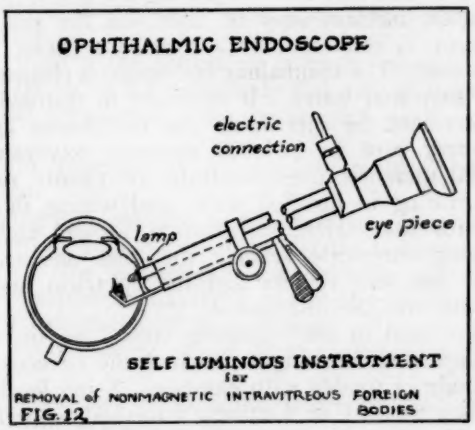


Fig. 12.—Ophthalmic endoscope: self-luminous instrument for removal of nonmagnetic intravitreous foreign bodies.

VITREOUS: SECOND METHOD WITH OPHTHALMIC ENDOSCOPE [18]

I devised this instrument in 1934, first in the nonluminous form, and presented it before this section [19] in the same year. Shortly thereafter I designed a self-luminous endoscope for removal of intravitreous nonmagnetic foreign bodies. This later model was demonstrated at the October 1934 meeting of the American Academy of Ophthalmology and Oto-Laryngology. I have used it successfully in 4 cases. It has also been used with success clinically by Spaeth [6] and others.

The ophthalmic endoscope consists of (1) a light carrier with a very small miniature lamp, (2) a special inverted Galilean telescope 2.5 mm. in diameter and (3) a small tubular forceps held together in a straight line by a metal sheath. In cross section the working end of the instrument measures 2.5 by 6.5 mm. The telescope affords a field of view 60 degrees in diameter, so that at 15 mm. distance the field is 15 mm. in diameter, at 20 mm. distance the field is 20 mm. in diameter, and so on. Thus, two thirds of the interior of the eye can readily be covered by moderate tilting of the instrument. Objects at a distance of 15 mm. from the telescope objective lens are magnified 2 diameters. The magnification increases with proximity to the telescope. The lens system is so constructed that objects in the field of view are in focus at all distances from 1 to 25 mm. Thus all instrumentation can be observed directly.

Various forceps are supplied with the instrument. Some have serrated jaws with smooth edges for grasping irregular shaped splinters, others have small cup shaped jaws or ring shaped jaws for lead BB shot. The adjustable sheath may be preset for the desired depth of forceps penetration into the globe.

14. Verhoeff, F. H.: Concerning Magnetic Intraocular Foreign Bodies and Their Removal, Am. J. Ophth. **15**: 689 (Aug.) 1932.
15. Barbour, F. A., and Fralick, F. B.: The Posterior Approach for the Removal of Magnetic Intraocular Foreign Bodies, Am. J. Ophth. **24**: 553 (May) 1941.
16. Thorpe, H. E.: A New Forceps for Removal of Lead Shot from the Vitreous, Arch. Ophth. **15**: 308 (Feb.) 1936.
17. Stieren, E.: Magnet Extraction from the Vitreous, Am. J. Ophth. **15**: 1121 (Dec.) 1932.
18. Thorpe, H. E.: Ocular Endoscope: An Instrument for the Removal of Intravitreous Nonmagnetic Foreign Bodies, Tr. Am. Acad. Ophth. **39**: 422, 1934.
19. Thorpe, H. E.: Ocular Endoscope, Tr. Sect. Ophth., A. M. A., 1934, p. 290.

PRELIMINARY PRACTICE WITH THE ENDOSCOPE

The most important factor in the application of the endoscope is to become thoroughly familiar with its use by working inside a small light proof pill box 1 inch in diameter, approximate in size to the eye. Since the instrument is monocular, that is a handicap one learns to overcome during practice. Then one should practice with pig's eyes into which a foreign body such as a lead shot has been inserted through a scleral incision. The same incision may be used for the endoscope. The lamp is connected by a cord to a preset battery or rheostat. The ophthalmic endoscope is cleansed with green soap and water. It is rinsed in distilled water and sterilized by immersing the instrument and the connecting cord in 1:1,000 mercuric oxycyanide or 1:3,500 mercuric phenyl nitrate for twenty minutes. After rinsing in distilled water and wiping dry, it is ready for use. Heat sterilization, alcohol and other sterilizing chemicals (except the ones advised) will damage the lens cement and the electrical insulation and thus ruin the instrument.

When used in the operating room, the instrument is applicable to most cases in which the vitreous is not too bloody or muddy with exudate. X-ray localization by either Sweet's or Comberg's method is performed first. The sclera is exposed in the quadrant of localization preferably between two muscles or beneath the inferior or superior rectus (never beneath the lateral or medial recti because of the long ciliary arteries). A rectangular area 4 by 8 mm. with its long axis meridional is plotted on the surface of the sclera in the quadrant of attack. The sides of this rectangle are now outlined with scleral surface coagulations 2 mm. apart. These are made either with the 1 mm. diameter flat surface electrode or with the short Kronfeld diathermy needle electrode. A meridional I shaped scleral incision 2 by 7 mm. is now prepared with a number 15 Bard Parker scalpel, cutting down just to the choroid. Two Mendoza sutures are placed in the lips of the scleral incision. With these sutures the assistant can either pull the flaps of the incision open or he can shut them. Epinephrine 1:100 and thromboplastin are now dropped onto the choroid to produce a bloodless field. After a few moments the field is sponged dry. The choroid and retina are now incised the full length and shape of the scleral opening with the cutting current or with a small Graefe knife, using a shallow thrust. One now waits a few moments for the foreign body to appear in the wound. (It sometimes does, while the lips of the wound are held up with the aforementioned silk sutures.) The endoscope held in the left hand, with lamp lit, forceps controlled with right thumb and index finger, is now guided to the wound. The surgeon puts his eye to the eyepiece just as he places the working end of the instrument within the lips of the incision. He must be just within the retina or he cannot see the interior. The forceps must be kept closed and pulled up within 2 to 3 mm. of the telescope. The assistant prevents any deeper thrust of the body of the instrument while the surgeon inspects the interior of the globe in his search for the foreign body. As he is searching, he has the forceps blades turned slightly to one side. Once the foreign body is found, the surgeon gradually pushes the grasping forceps toward it, opens the forceps blades and allows the forceps to close slowly onto the foreign body. The forceps, with the foreign body retained by its self-closing spring action, is pulled up to the telescope under direct vision and the whole instrument is now removed from between the lips of the wound. Little or no vitreous is lost if the telescope is not pushed into the vitreous body. During the entire procedure one assistant also keeps the scleral lips closed against the endoscope with the aid of the sutures mentioned. As soon as the foreign body is removed, the sutures are tied, closing the scleral incision. If necessary, additional sutures may now be inserted with the aid of the Burch pic or bident. The conjunctiva is closed by a running suture. The fundus may be inspected if the lens is clear to note the position and status of the retina. The postoperative treatment that I follow is the same as the one generally used for retinal detachment. After three to four weeks the patient is given Lindner Stenopaic spectacles. Of 4 patients operated on by this method, 1 has 20/30 vision, another has 20/100 vision, a third with originally bloody vitreous and a large ciliary wound has in the past five months come up to counting fingers and the fourth has a soft eye with no light perception.

Considerable interest has recently been shown in this method by military and naval medical officers as well as by ophthalmologists in civilian practice.[20]

VITREOUS: THIRD METHOD

Scleral Incision and Transillumination.—This method was suggested in the presentation of the first (nonluminous) model of the ophthalmic endoscope in 1934.[19]

A scleral incision is prepared as is usual for the transscleral approach with addition of surface diathermy for prevention of retinal detachment, as described in the second method. One or two transilluminators are placed on the opposite walls of the globe, and as one inspects the open incision one may see the foreign body shadow. It is grasped with small dressing forceps. The sclera is closed with previously inserted sutures. This method has proved useful to me in 2 instances. Schutz [21] has recently applied this method. Lindner [22] recommended this approach.

In commenting in general on surgery of the vitreous, it is paramount not to grope in the vitreous blindly. It is highly important not to fish around in and generally lacerate the vitreous. The forceps should be small and simple acting and should approach the foreign body directly by the shortest and most feasible route. One must guard against damaging the retina and other vital structures. One must have a definite plan of approach and modus operandi, worked out on the basis of accurate localization. This is best done in form of a sketch or diagram.

VITREOUS: FOURTH METHOD

Biplane Fluoroscope and Cross [23] Forceps for Removal of Lead Shot.—I have had no personal experience with this method because of the lack of a biplane fluoroscope. In the hands of Cross, with the aid of his fluoroscopist, the method has proved successful in several cases.

SCLERAL FOREIGN BODIES

Generally if they do not penetrate into the globe, scleral foreign bodies may be allowed to remain undisturbed. However, should removal be necessary, an accurate localization with careful plotting comes first.

20. The manufacturer of the instrument is American Cystoscope Makers, Inc., 1241 Lafayette Avenue, Bronx, New York.
21. Schutz, J. A.: Removal of a Nonmagnetic Foreign Body from the Vitreous, Am. J. Ophth. **25**: 70 (Jan.) 1942.
22. Lindner, Karl: Personal communication to the author, 1935.
23. Cross, G. H.: Removal of a No. 6 Lead Shot from Within the Eyeball by Specially Devised Forceps with the Aid of the Double Plane Fluoroscope, Tr. Am. Ophth. Soc. **25**: 80, 1927.

followed by gradual cutting down on the indicated point in the sclera. If the foreign body is not visible on the surface, it is well to palpate the site of the projected incision with the end of a muscle hook to note the presence of a hard foreign body.

Orbital foreign bodies do not come within the scope of this paper. Most of them can remain undisturbed, unless large or making pressure on vital structures or causing pain.

The postoperative treatment is as follows:

1. *Foreign Protein Therapy.*—(*a*) In fresh injuries, on admission to the hospital 10 cc. of boiled milk is injected intragluteally for men, 8 cc. for women and appropriate lesser doses for children. Twenty million of typhoid antigen A intravenously may be substituted for the 10 cc. of milk dose and correspondingly for lesser doses. This may be repeated every third or fourth day for four to six doses. The typhoid antigen dosage is increased 20 to 40 to 60 million, and so on as required. (*b*) Older injuries receive the foreign protein therapy within six hours after intraocular surgery.

2. *Sulfonamides.*—Sulfadiazine is employed. In fresh injuries an initial dose of 2 Gm. is followed by 1 Gm. every four hours for twenty-four to forty-eight hours. Thereafter 1 Gm. is administered every six hours for two to three days. The dosage is figured 0.1 Gm. per kilogram of body weight. The blood cell count (red and white) and the urinalysis are performed every forty-eight hours during sulfonamide medication. The sulfadiazine blood level is also watched.

3. *Position in Bed.*—The patient is usually kept flat in bed for forty-eight hours for all wounds of the cornea. Scleral wounds or incisions require absolute rest for six to seven days. Incisions or wounds in the lower part of the globe require three to four days longer rest in the supine position.

4. Atropine is used (after checking tension) in all cases except foreign bodies in the anterior chamber or those projecting from the cornea into the anterior chamber. However, it is used routinely in all postoperative foreign body cases except when an existent primary glaucoma contraindicates its use.

5. Dressings every other day are routine except in traumatic cataract (or traumatic iritis), when they are done daily for mydriatic instillation.

6. Stenopaic Lindner spectacles are used for eight to sixteen weeks in all transscleral wounds posterior to the ora serrata.

SYMPATHETIC OPHTHALMIA

Every penetrating ocular injury should be watched for a year or longer for early evidences of sympathetic ophthalmia. This means careful slit lamp and ophthalmoscopic examination of both eyes at frequent and regular intervals. The use of foreign proteins, asepsis, the sulfonamide drugs and careful excision of prolapsed uveal tissue have caused a definite reduction in the occurrence of this dread disease. One must constantly be on the lookout for all the clinical evidences of this disease. Enucleation should not be delayed in the hope of saving a severely mutilated or hopelessly damaged globe when sympathetic ophthalmia is a likely probability. One should remember that the slit lamp gives reasonably early warning of developing sympathetic disease.

CONCLUSIONS

Chemically inert intraocular foreign bodies need not be disturbed unless they produce mechanical irritation. They sometimes cause glaucoma.

Differentiation of magnetic from nonmagnetic foreign bodies can be aided by the history of the injury, examination of the tools employed and use of the Berman locator as well as by examination of fragments from the face or other exposed parts of the body in explosion cases. The use of the magnet for diagnosis is bad practice and should be deprecated.

A simple x-ray technic is afforded by the Vogt and Comberg methods. A modified Comberg lens as described gives more certain localization and avoids pitfalls.

Stereoscopic x-ray films with localizing shell give a tridimensional concept of the foreign body position. When combined with air injection in Tenon's space, they help in diagnosing double perforations.

Multiple intraocular foreign bodies suggest conservative therapy for the time being when they exceed three in number.

One must avoid mutilating a globe simply for the sake of removing a foreign body that may be inert.

Retinal detachment must be properly and promptly treated.

Prompt removal of intraocular foreign bodies is important.

In using the ophthalmic endoscope, one must practice on numerous animal eyes to master the technic. Properly used, the endoscope is a valuable aid to our armamentarium for saving a potentially lost eye from a retained nonmagnetic foreign body.

One should never grope in the vitreous with any instrument.

Infections must be prevented and treated by asepsis, assurance of patency of the lacrimal passages, foreign proteins and sulfonamide drugs.

Foci of infection should not be overlooked in causing delayed healing and complications, such as uveitis.

The topical use of 1:100 epinephrine and thromboplastin helps to check oozing hemorrhage.

Removal of an injured eye is indicated only when it is collapsed or extensive loss of vitreous has taken place and light perception is gone.

Corneal and scleral lacerations heal earlier and better when sutured. The wound may also be covered by a conjunctival flap in addition to suturing.

One should remember to examine carefully the fellow eye at the first and subsequent visits: It may harbor a foreign body from the same or a previous accident. Both eyes should be watched routinely with slit lamp and ophthalmoscope.

Sympathetic ophthalmia should be kept in mind in every perforating case.

500 Penn Avenue.

ABSTRACT OF DISCUSSION

DR. E. B. SPAETH, Philadelphia: The accurate x-ray localization of a magnetic foreign body is relatively unimportant as long as we know (1) the size and the shape of the foreign body, (2) whether the foreign body is intraocular or extraocular and (3) perhaps whether it is anterior or posterior to the iris-ciliary body-lens diaphragm. A careful history of the situation and circumstances present at the time of the accident plus the x-ray intensity or density of the foreign body will probably clear up the question of whether or not the foreign body is a magnetic one. Conversely, the most accurate x-ray localization possible should be obtained for nonmagnetic foreign bodies. Even if one foreign body is fully visible with the ophthalmoscope, with the slit lamp or with oblique illumination one still does not know whether or not others, not visible, may be present. The fact to be emphasized is this: the use of any and all means available for localization, radiopaque markers, scleral rings, contact glasses, iodized oil and air injections, molded films and filtered x-rays, are all necessary though perhaps not in any 1 individual case. An eye which is hopelessly destroyed, sightless and collapsed should be removed as soon as possible. It shortens the period of hospitalization and permits an earlier return of the patient to social and economic activities. Sympathetic ophthalmia does not develop ordinarily

as the result of profound ocular catastrophes. The minor injuries, the limbal penetrations, the minor slight uveal incarcerations, cases with undiagnosed minute foreign bodies lying in the uvea are the types of injury responsible in the largest number of cases of established sympathetic ophthalmia. The cure of this condition rests wholly in its prevention regardless of the basic anatomic, physiologic, bacteriologic or biochemical cause for its development. Detailed and painstaking medical treatment and sound early rational surgery can prevent it to a remarkable degree. Every case of ocular trauma with penetration (and penetration is an essential) should be considered for the first forty-eight hours a lost eye and treated as such. This means hospitalization, medical therapy, early surgery and careful postoperative attention. Penetrating wounds through the sclera are potential cases of retinal separation. Because of this, even though it does not develop while under active observation and treatment and even though the vitreous chamber is so obscured that one cannot see the retina, it is probable that all these patients should be placed on pinhole glasses as early in the course of their treatment as is possible, that is, as soon as one of the eyes is uncovered. It is a clinical point too frequently overlooked.

Major Meyer H. Riwchun, M. C., A. U. S.: In the preoperative and operative preparation of the patient there is substantial agreement. The use of retrobulbar anesthesia via the Atkinson cone injection method is an excellent means of obtaining thorough anesthesia; however, in my experience from 2.5 to 3 cc. of the 2 per cent procaine solution was found to be necessary in order to produce it. In cases in which an intraocular foreign body has been embedded for some time, sulfadiazine therapy is instituted twenty-four hours prior to surgery. Two Gm. is given at once followed by 1 Gm. every four hours for two days and then every six hours for two more days, after which it may be discontinued unless infection is present. Dr. Thorpe mentioned the pars planum approach of Voerhoeff and Fralick. This is an excellent method of removing magnetic intraocular foreign bodies. It can be utilized occasionally in nonmagnetic foreign bodies if they are located in this convenient zone, a fine forceps being utilized instead of the magnet. The advantages of this method are absence of hemorrhage, little likelihood of detached retina and practically no danger of sympathetic ophthalmia. Postoperative reaction is almost entirely absent following this procedure. In the past four months on closing the bulbar conjunctiva I have been injecting 1 cc. of penicillin (250 units per cubic centimeter) subconjunctivally in the operated area. It is my impression that the likelihood of infection is thereby reduced. Other medication such as atropine or physostigmine ointment or drop may be safely instilled without fear of incompatibility. In addition to the postoperative therapy as outlined by Dr. Thorpe, 1 cc. of tetanus toxoid is given to all our combat patients previously immunized with tetanus toxoid if they have not had a booster injection within six months. Those patients not immunized with toxoid are given 1,500 units of tetanus antitoxin after a diagnostic intradermal skin test for sensitivity has been made. Pinhole glasses are prescribed and worn as outlined with the lens over the operated eye blacked out. This avoids unnecessary movements of the eye in an attempt to adjust to a fixed pupillary distance, which is too exacting for normal variations of divergence and convergence.

Modern Idea of Heredity.—It is evident that the modern idea of heredity differs greatly from the early mystical and supernatural conception of transmission of traits from parents to successive generations. Throughout the seventeenth and eighteenth centuries there prevailed a theory of preformation, the followers of which maintained the preformation of the organism in all its parts within the egg. They regarded the apparent new formation or organs during development as an illusion and held that development was merely an unfolding of this preformed miniature. Moreover, they believed that the germ contained not only a preformation of the organism into which it was to grow but of successive generations as well.—Gordon, Benjamin Lee: The Romance of Medicine, Philadelphia, F. A. Davis Company, 1944.

TREATMENT OF GONORRHEA AND STUDIES OF INTRAMUSCULAR IRRITATION

WITH SEVEN SALTS OF PENICILLIN

LAWRENCE E. PUTNAM, M.D.
HENRY WELCH, Ph.D.
AND
SIDNEY OLANSKY, M.D.
WASHINGTON, D. C.

In previous studies[1] of salts of penicillin, which included the sodium, lithium, ammonium, strontium, calcium, magnesium and potassium salts,[2] it was demonstrated that under the proper conditions of test all seven salts were equally efficacious in the treatment of pneumococcic infections in mice. It was shown also that the toxicity of these preparations in these animals was dependent on the cation used in their production.

Table 1.—*Relation Between Site of Injection and Amount of Pain Produced by Seven Salts of Penicillin*

Site of Injection	Amount of Pain 0	1+	2+	3+	4+	Total Number of Injections
Buttock	18	16	1	0	0	35
Triceps	13	11	7	4	0	35
Deltoid	5	13	13	3	1	35

Table 2.—*Correlation of Subjective Pain in Patients with Intradermal Injections of Rabbits with Seven Salts of Penicillin*

Salt of Penicillin	Potency, Units per Mg.	Reaction of Patients† to Intramuscular Injection of 25,000 Units: Degree of Pain‡ and Number of Injections 0	+	++	+++	++++	Reaction of Rabbits to Intradermal Injections of 6,000 Units: Edema	Hemorrhage
Calcium	973	8	6	1	0	0	+	0
Magnesium	970	8	5	2	0	0	+	0
Sodium	1,037	5	8	2	0	0	+	0
Strontium	835	7	3	4	1	0	+	0
Potassium	1,020	5	4	3	3	0	+	0
Lithium	1,033	2	6	7	0	0	+	0
Ammonium*	1,010	1	8	2	3	1	+	+

* *pH* of NH_4 salt (3.5) was adjusted to 6.8 before use. All other salts used at *pH* 6.5-7.0.

† Thirty-five patients with sulfonamide resistant gonorrhea treated, 5 with each salt of penicillin. No failures, as shown by three consecutive cultures taken on first, third and fifth days.

‡ Subjective pain in patients determined by fifteen intramuscular injections of each salt.

In the present study each salt of penicillin was assayed chemically to determine the weight of cation present, and in no case was the amount in 100,000 units sufficient to contraindicate its use in man.

Thirty-five patients with sulfonamide resistant gonorrhea were treated with the seven salts of penicillin, 5 patients with each preparation. In the group were 23 females, 8 white and 15 colored, and 12 males, all colored. Their ages varied from 14 to 44. All patients in this series were shown to be infected with the gonococcus by one or more positive cultures. These cultures

From the Food and Drug Administration (Drs. Putnam and Welch) and the Gallinger Municipal Hospital (Dr. Olansky).

This study was made in the Rapid Treatment Center, Gallinger Municipal Hospital, Washington, D. C. Assistance and cooperation were given by Leola Jones, R.N.

1. Welch, H.; Grove, D. C.; Davis, R. P., and Hunter, A. C.: The Relative Toxicity of Six Salts of Penicillin, Proc. Soc. Exper. Biol. & Med. **55**: 246-248, 1944. Welch, H.; Chandler, V. C., and Davis, R. P.: A Study of Seven Different Salts of Penicillin, to be published.

2. These salts of penicillin were prepared by Charles Pfizer & Co., Inc., from a single master lot of penicillin sodium. This investigation was made at the request of the Office of Scientific Research and Development.

were taken after treatment with sulfathiazole had failed. The therapy with penicillin consisted in the injection of 100,000 units of each salt dissolved in 20 cc. of isotonic solution of sodium chloride divided into four equal doses and given at three hour intervals. Three successive negative cultures were considered to be satisfactory evidence of cure. These cultures were taken one, three and five days after treatment, and on this basis, regardless of the type of salt injected, all 35 patients were cured by this treatment.

In addition to a study of the efficacy of these products in the treatment of gonorrhea, an investigation was made also of irritation produced by the intramuscular injection of the seven salts of penicillin. In order to interpret the irritance of the preparations, the subjective pain reported by the patients was classified as 1 +, 2 +, 3 + or 4 +, depending on whether it was very slight, slight, moderate or pronounced. In all cases if the pain produced radiated to the knee, elbow or beyond the valuation of the pain was raised one step, i. e. a 1 + reaction was elevated to 2 +, and so on.

Lyons [3] has pointed out that the usual sites for injection of penicillin are the deltoid and gluteal muscles. In the present study a record was kept of the patients' reactions to the seven salts of penicillin when injected into three different muscle sites (gluteal, triceps and deltoid). The results of these observations are recorded in table 1.

It will be noted that injections into the buttock caused the least pain, while those injected into the deltoid were the most painful. These results are in accord with other studies [4] in which it was demonstrated with a large number of lots of commercial penicillin sodium that injections into the buttock were less painful than injections made into either the triceps or the deltoid. The fact that injections into the buttock caused the least pain confirms the clinical impression obtained with bismuth, mersalyl and other irritating substances that deep injections into large muscles are preferable for such drugs.

An attempt was made to correlate the amount of pain produced in man with objective evidence of irritation in rabbits. It had been previously determined [4] that there was a definite relationship between the purity of commercial lots of penicillin and freedom from subjective pain in man. Likewise, when injections with certain low potency penicillin preparations are made intradermally in rabbits large areas of edema and hemorrhage appear at the site of injection within one or two hours, depending on the concentration of the drug. Edema and hemorrhage occur to a lesser degree with more highly purified preparations, and when crystalline penicillin sodium is used no such reactions occur.

In this study the concentrations of penicillin injected intradermally into rabbits were 2,000, 4,000, 6,000, 8,000 and 10,000 units each in a volume of 0.5 cc. of distilled water. From previous tests made on a large number of commercial lots of penicillin sodium it would appear that when intradermal injection into rabbits of 6,000 units or more in a volume of 0.5 cc. produces hemorrhage within one to two hours such preparations usually cause undesirable intramuscular irritation on injection into man.

In this study only one of the seven salts, penicillin ammonium, produced a clinically undesirable (4 +) reaction on intramuscular injection in 1 patient. Similarly, penicillin ammonium was the only salt of the seven which produced a hemorrhage on intradermal injection of 6,000 units or more in rabbits. All the other salts, when injected into rabbits, produced slight to moderate edema, which developed in from one to two hours, while these salts on intramuscular injection into patients produced only slight to moderate pain (0 to 3 + reactions). The potency of the salts of penicillin used and the correlation of subjective pain in patients with intradermal injection of rabbits are given in table 2.

3. Lyons, Champ: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. **123**: 1007 (Dec. 18) 1943.

4. Herwick, R. P.; Welch, H.; Putnam, L. E., and Gamboa, A. M.: Correlation of Purity of Penicillin Sodium with Intramuscular Irritation in Man, to be published.

SUMMARY AND CONCLUSIONS

Thirty-five patients with sulfonamide resistant gonorrhea, 5 treated with each of seven salts of penicillin (Na, Li, NH_4, Sr, Ca, Mg and K) were cured, as shown by negative cultures taken the first, third and fifth days after treatment. Only one penicillin preparation (penicillin ammonium) produced severe pain on intramuscular injection in man. This preparation, in contrast to the other six salts studied, produced a hemorrhagic reaction in rabbits when injected intradermally in concentrations of 6,000 units or more. Injections into the buttock caused the least pain when compared with injections made into the deltoid and triceps.

AN APPRAISAL OF THE RESULTS OF SURGERY IN TREATMENT OF REGIONAL ILEITIS

JOHN H. GARLOCK, M.D.
AND
BURRILL B. CROHN, M.D.
NEW YORK

The earliest experiences with the surgical treatment of ileitis seemed eminently satisfactory. They were based on a small series of cases, most of them uncomplicated terminal ileitis, with involvement of the last 8 to 12 inches of ileum. Resection was the usual method of procedure, the mortality of the operation seemed reasonable and the results apparently were satisfactory. Medical statistics founded on small units of cases are often misleading. The margin of error is great. The smaller the series, the greater is the likelihood of a swing in one direction or another, a variation that may lead to erroneous conclusions.

With the passage of time, now twelve years since the publication of the first paper mentioning ileitis or regional enteritis as a symptom complex, and with a much larger series of cases and much more maturity of experience and judgment, the time seems propitious to review the results of the surgical management of ileitis, its immediate and late mortality and the functional and structural results as regards life, efficiency and the restoration of physiologic function.

The series of cases to be reviewed includes 164 cases of enteritis, terminal ileitis and combined ileocolitis, the operations performed by many surgeons in many institutions. Most of the patients were operated on at the Mount Sinai Hospital in New York City by members of the surgical staff (137 cases); the remainder (27) were treated elsewhere but in the course of time came under our observation for review or for further

From the Mount Sinai Hospital.
Dr. Ralph Colp gave permission to include in this series a few cases from his service.
Read before the Section on Surgery, General and Abdominal, at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 14, 1944.

surgical or medical care because of persisting difficulties. All of the cases have been carefully followed for a period of two to fourteen years, and the present status of each one is well known by us.

The inclusion of a fairly large series of patients operated on elsewhere who later developed difficulties in our own personally supervised group of patients depresses the over-all picture. These cases are unsatisfactory not necessarily because of originally poor surgical judgment or operative procedures but because of the difficulties inherent in the surgical management of ileitis and the tendency of the disease to recur postoperatively in new segments of small bowel or often in the colon. The inclusion of cases of high ileitis or of localized jejunitis, as well as cases of combined ileitis and colitis, still further complicates the statistical review of a large group of patients and dampens the enthusiasm which the simpler and more direct treatment of the original terminal forms of ileitis seemed to inspire. However, after an experience with 164 cases covering a period of fourteen years, we felt that it was important to review again our material as thoroughly as possible in order to appraise the late results of the surgical treatment of this disease.

TABLE 1.—*Total Series, 164 Cases*

	Number	Deaths		Recurrences	
		Number	Per Cent	Number	Per Cent
Ileocolostomy with exclusion..	65	0	0	9	13.8
One stage resection.....	55	9	16.3	9	19.5
Two stage resection.....	25	3	12.0	8	36.3
Combined ileocolitis.....	19	2	10.5	3	17.6

ANALYSIS OF RESULTS

Primary Resection.—A primary resection of the disease process, usually of the pathologic terminal ileum and the adjacent normal ileum and ascending colon, was performed in 55 cases. Nine patients died postoperatively. Of the remaining 46, 9 developed recurrences in the ileum above the point of anastomosis (ileotransverse colostomy or ileosigmoidostomy), a recurrence rate of 19.5 per cent. Some of these recurrences have not been severe, and except for diarrhea and some loss of weight the patients have been treated medically in a fairly satisfactory manner. The fact that we have encountered no late mortality in this group indicates that, once the risk of immediate operation has been overcome, life itself is assured, although physiologic intestinal function and general weight, strength and efficiency may be impaired.

TABLE 2.—*Mount Sinai Hospital Series, 137 Cases*

	Number	Deaths		Recurrences	
		Number	Per Cent	Number	Per Cent
Ileocolostomy with exclusion..	57	0	0	6	10.5
One stage resection.....	45	6	13.3	6	15.4
Two stage resection.....	16	2	12.5	4	28.6
Combined ileocolitis.....	19	2	10.5	3	17.6

The larger incidence of recurrence not hitherto recognized is due in large part to the longer period of follow-up. In this group we note a case of recurrence eight years after the original observation and another instance of recurrence twelve years after the first surgical procedure. In both instances, eight and twelve years of perfect health and function intervened between the primary operation and the severe recurrence. A late recurrence has already been noted by Bockus [1] in a similar type of case in which nine years intervened before the lighting up of the original disease in a new segment of the small intestine. In this group the primary operative mortality rate is appreciable (16.3 per cent) but late follow-up studies show a distressingly high rate of recurrence.

Ileocolostomy Group.—An ileotransverse colostomy or ileosigmoidostomy with transection of the ileum was carried out in 65 cases with no operative death. Nine recurrences of the disease must be recognized, a recurrence rate of 13.8 per cent. Here the mortality rate of the operation is nil, but again a fairly high recurrence rate is evident although the figure is considerably less (13.8 per cent) than that following primary resection (19.5 per cent). A short-circuiting procedure without transection of the ileum was not performed in this series because it was recognized early that transection of the ileum well above the lesion is essential to a satisfactory result.

Two Stage Ileocolic Resection.—This graded type of operation consists of a primary short-circuiting ileocolostomy above the lesion with transection of the ileum followed after a period of time by resection of the original area of disease in the terminal ileum and cecum and ascending colon. There were 25 patients in this group, with 3 postoperative deaths, a mortality of 12 per cent. We note 8 instances of recurrent disease in the surviving 22 patients, a rate of 36.3 per cent. The second of these two stage procedures was often necessitated by the lack of success of the first or short-circuiting operation. The operative risk was therefore greater and the likelihood of recurrence similarly enhanced in spite of the second more radical procedure. In the combined cases of ileocolitis in which the ileum and some segment of the colon, usually ileum and cecum or ileum and ascending and transverse colon, are involved the magnitude of the surgical procedure or procedures is greater, the risk is increased and the results are more dubious. Nineteen cases of combined ileocolitis are included in this group. There were 2 operative deaths and 3 instances of recurrence of the disease. Finally we include in this series 2 cases of multiple resections of the ileum for concomitant disease in two widely isolated segments of the small bowel. One patient is well and 1 developed a recurrence.

TABLE 3.—*Outside Series, 27 Cases*

	Number	Deaths		Recurrences	
		Number	Per Cent	Number	Per Cent
Ileocolostomy with exclusion..	8	0	0	3	47
One stage resection.....	10	3	30	3	43
Two stage resection.....	9	1	11	4	50

If we analyze separately the cases treated at Mount Sinai Hospital and those at other institutions, a disparity of figures becomes evident. This may be explained in part by the larger number of cases in 1 instance as compared with the other. Thus, in the Mount Sinai Hospital series there were 45 cases of ileocolic resection with 6 deaths, or 13.3 per cent, and 6 recurrences, 15.4 per cent. There were 57 patients in the ileocolostomy group with no operative mortality and

1. Bockus, H. L.: Gastro-Enterology, Philadelphia, W. B. Saunders Company, 1944, vol. 2, p. 192.

6 recurrences, a rate of 10.5 per cent. In the two stage resection group there were 16 cases with 2 deaths, a mortality of 12.5 per cent, and 4 recurrences, or 28.6 per cent. In the group of combined ileocolitis there were 19 patients with 2 deaths, a mortality of 10.5 per cent, and 3 recurrences, or 17.6 per cent. In the group treated at other hospitals 10 resection cases were followed by 3 deaths, a mortality of 30 per cent, and 3 recurrences, or 43 per cent. There were no deaths in the group of 8 ileocolostomy cases, but 3 recurrences, 47 per cent. In a group of 9 two stage resections there was 1 death, or 11 per cent, and 4 recurrences, or 50 per cent.

GENERAL OBSERVATIONS

Operative Mortality.—In the entire group of 164 cases, regardless of the complexity of the procedures involved, there were 14 deaths, an operative mortality of 8.5 per cent. The low operative risk for intra-abdominal procedures of such magnitude bespeaks the successful advances in surgical judgment, technic, anesthesia and preoperative and postoperative care.

The Choice of Operation.—We have collected enough material to permit an evaluation of the relative merits of primary resection as compared with short-circuiting procedures. We note 55 primary resections with 9 operative deaths and a recurrence rate of 19.5 per cent. In comparison, we have 65 short-circuiting procedures with no operative death and a recurrence rate of 13.8 per cent. The greater safety of the less radical procedure and its smaller rate of recurrence would weigh the balance strongly in favor of the more conservative operation.

Is it correct to term an ileotransverse colostomy or an ileosigmoidostomy with transection of the ileum a "palliative procedure"? "Palliative" would indicate an incomplete or a temporary measure, short of permanent cure. Such a term as applied to a short-circuiting procedure for the relief of regional ileitis is a misnomer, for in the course of the 25 instances in which a two stage resection was undertaken the specimen, when finally removed after a variable interval, showed in almost every case complete healing. In the interval between the two operations, abdominal inflammatory masses rapidly dissolve, abdominal wall fistulas heal and enterovesical communications close spontaneously. The resected specimens show advanced healing, scar replacement, a shrinkage of the lumen of the intestine and cessation of evidences of inflammation.

Why, then, was the second stage or resection undertaken? Either because the two stage procedure had been planned and adopted as the operation of choice and was carried through as per schedule because, in the judgment of the surgeon, conditions warranted the completion of the assignment, or persistent diarrhea or some localized discomfort or pain or delay in the restoration of full weight and strength seemed to indicate the removal of an area which might be a residual focus of disease. Also, because of the not infrequent recurrence above the anastomosis, it was originally thought that the secondary removal of the original source of infection would reduce the incidence of recurrences.

The two stage operation has been generally discarded for three reasons: (1) because in most instances the resected area of ileitis was found inactive and healed and fistulas spontaneously closed, (2) because in spite of the second stage resection the percentage of recurrence remained as high as if not higher than following the simple short-circuiting procedure and (3) because in the group of the 25 cases of two stage resections we noted 3 deaths, an appreciable mortality.

In the earlier years of the surgery of ileitis, resection was preferred because, without the pathologic examination of the resected specimen, the actual diagnosis of the lesion could not be established beyond a reasonable doubt. The suspicion of intestinal tuberculosis was always suggested, and only the histologic and bacteriologic confirmation or denial would suffice to establish the nonspecificity of the lesion. With growing experience and confidence, the surgeon was able to identify and recognize ileitis as such and could with confidence short-circuit the lesion and return the diseased bowel to the abdomen without invoking criticism and without entailing the additional risk of a more radical procedure.

The Question of Recurrence.—It is difficult to explain satisfactorily the relatively high rate of recurrence proximal to the new anastomosis. Two possibilities immediately suggest themselves: Either the surgeon is unable to recognize the most proximal of the skip lesions before transecting the ileum or the recurrent focus starts from a nidus of infection outside the intestinal wall proper. With increasing experience the surgeon should be able to demonstrate all skip areas, knowing that these are characteristic features of the disease. This demands, in every case, a careful examination at the operating table of the entire small intestine. It is possible, however, that some skip areas may be so small as to escape the attention of the most experienced and alert technician. If this is the explanation, then a much wider area of small intestine must be excluded in order to circumvent any inclusion of disease above the anastomosis, a decision which might invite serious diarrhea and nutritional disturbances because of too much exclusion of mucosal absorbing surface. It has been suggested that the recurrences are due to residual infection outside the intestinal wall, the main suspicion being directed to the mesenteric lymph nodes. The fact that the recurrence rate is just as high, if not higher, after radical resection with excision of the mesenteric lymph nodes would seem to imply that these lymph nodes are not responsible for the recurrences. Furthermore, if the lymph nodes in the mesentery were the source of recurrent areas it would be necessary to hypothecate spread against the lymphatic flow, a most unusual event in the pathologic sequence of inflammation in man. It must be emphasized further that secondary operation, on many occasions, has disclosed complete recession of previously enlarged nodes after a simple ileocolostomy.

The Clinical Significance of Recurrences.—The diagnosis of recurrence is suggested by the presence of diarrhea, fever and loss of weight and is confirmed by radiographic demonstration of irregularity in the segment of ileum proximal to the new anastomosis. This is best demonstrated by the barium enema. In many of these so-called recurrences the basis for such a diagnosis is the roentgenographic demonstration of a distorted mucosal pattern or irregularity of outline of the "new" terminal segment of ileum. In many of these fever is absent, diarrhea is moderate, weight is maintained and the hemoglobin content of the blood is unaffected and the patient functions as an efficient member of society. Many of these so-called recurrences are "radiographic" recurrences only and the diarrhea is not more excessive than is consistent with the increased number of movements that characterize any shortened intestinal tract. These patients do well with general

supportive measures, such as diet, rest, liver extract and vitamin B injections, and they often improve with succinylsulfathiazole or sulfathaladine as chemotherapeutic agents. A large number of patients suffering with mild recurrences of the radiographic type have been under observation for some years and remain comparatively well. One wonders whether, in the absence of active symptoms, the x-ray is the final criterion for making a diagnosis of recurrence. However, in appraising the cases reported in this paper we have classed every one presenting x-ray evidences of ileal distortion characteristic of the disease as a recurrence. Cures by surgery in ileitis are often so complete that we have records of 3 patients who have been admitted to the armed forces of the country and are serving in perfect health.

No satisfactory medical treatment of ileitis exists. Chemotherapy has not been proved to be generally satisfactory in this disease; penicillin has not been released in sufficient quantity for a fair trial, although there is little scientific reason to believe that penicillin will be curative.

Until the cause of the disease is discovered, the treatment of ileitis remains surgical. The future improvement in the results of the operative treatment of ileitis will rest on earlier diagnosis and more prompt operative intervention. With earlier diagnosis on the part of the physician and with greater experience on the part of the surgeon, especially as regards the choice of operative procedure, the future should hold promise of far better results.

50 East Seventy-Seventh Street—1075 Park Avenue.

ABSTRACT OF DISCUSSION

Dr. Henry W. Cave, New York: Of the primary resections in 55 cases there were nine deaths. Of the 46 that did survive 9 developed recurrences, a recurrence rate of 19.5 per cent. Although these recurrences have taken place, some were not too severe and were treated by medical management. This is a high rate of recurrence following primary resection. As always, the longer the period of follow-up, the larger number of recurrences are discovered. There were 2 late recurrences, 1 eight years, the other twelve; both of these patients maintained perfect health and function between the time of primary operation and the time of recurrence. In the ileocolostomy group (which they now advocate) they had 65 patients. In this group of 65 patients there was no mortality, a commendable surgical achievement. They report a smaller group of 25 cases in which a two stage ileocolic resection was done. In the 22 that survived there was a surprisingly high recurrence rate of 36.3 per cent. The second stage procedure was performed frequently for the reason that the short circuiting maneuver previously had failed to cure the patient. Nineteen patients in this group were suffering from a combined lesion, "ileocolitis"; in other words, the ileum and the ascending or transverse colon were diseased. Considering the severity of this particular lesion, they were fortunate in having only two operative deaths. For the entire group of 164 patients there were fourteen deaths, an admirably low operative mortality of 8.5 per cent. They attribute this low mortality rate to advances in surgical judgment, anesthesia and preoperative and postoperative care. I think it was due to their wide experience with this disease and their own sound judgment in handling each difficulty. They admittedly cannot explain the high recurrence rate proximal to the anastomosis. They suggest that it is due to the fact that the surgeon does not discover involved areas higher up before transecting the ileum or perhaps that the point of recurrence is outside the intestinal tract and is not demonstrable. From the impressive number of cases and the figures shown of low mortality and low rate of recurrence, one would agree that in their hands, at least, the operation of choice is ileocolostomy with exclusion.

Dr. Claude F. Dixon, Rochester, Minn.: I agree that the results in some cases of nonspecific enteritis in which there is recurrence are discouraging. Recurrence is not invariably due to a diseased segment of bowel being overlooked at the time of resection but to the fact that often the disease develops in a heretofore normal segment of bowel. I believe that infection is not primarily the cause. Over a two years period my colleagues and I attempted to isolate a causative organism but to no avail. The same holds true with regard to a virus as a possible factor. In attempting to find a substance to which patients suffering from nonspecific enteritis are sensitive or allergic I have observed that many of them are sensitive to whole milk. Could this be the cause? Resection of the diseased segment of bowel is the procedure of choice. The exclusion type of ileocolostomy in my experience has not brought about complete recovery. It does in some instances produce an apparent abatement of the disease in the short circuited segment of intestine followed by general improvement of the patient's condition, but, on the other hand, I have had some patients who returned with an extension of the disease. When a fistula occurs, for example between the diseased segment of intestine and the urinary bladder, ileocolostomy in many of my cases has not brought about spontaneous closure of the communication between the bladder and the intestine. I have had the same experience with several cases in which an enteroabdominal fistula was present; therefore I still perform resection. In 3 of my cases there were so-called recurrences four to eight years after resection. Nonspecific enteritis usually occurs among high strung, nervous persons not unlike that group of patients among whom duodenal ulcer frequently develops. During the past six years my colleagues and I have performed resection (most often a one stage procedure) in 108 cases of nonspecific enteritis with only two deaths.

Dr. Burrill B. Crohn, New York: Most of the mortality in resection was the result of poor judgment. Resection in the presence of multiple fistulas and localized peritonitis, resection performed in the presence of well defined abscesses are likely to head one for disaster. In the course of time short circuiting surgery was introduced. At first I was disappointed with the fact that short circuiting was performed and the disease process was allowed to remain. In those earlier years I advocated and urged secondary resection. Now, with the review of this series of cases, I am convinced that the less surgery the better, the safer for the patient. Short circuiting alone, leaving aside the original disease, is probably the best procedure. I should like to go on record against the pessimistic figures in the literature. These data are published by men who accumulate hundreds of figures by reading various articles, lumping them all together and attempting to draw conclusions. The follow-up is here entirely insufficient and the statistics are therefore not likely to be reliable. We lack experience with penicillin; we think well of the sulfonamide drugs; I am still an enthusiastic supporter of the surgical approach to the disease. The future carries a greater promise of more satisfactory results because most of the cases of ileitis, as we see them today, have had courses ranging from two to ten or even twenty years before surgery was approached. If, in the future, the diagnosis can be made without the lapse of such an interminable time, and if the surgical approach is direct and takes place soon enough in the life history of the disease, I think the end results of surgery will be gratifying.

First Cesarean Section.—The first cesarean section on record was performed by an Italian physician, Christopher Bain, in 1540. Jeremias Trautmann of Wittenberg, Germany, first described the technic of the operation in detail. His patient died three weeks after the operation. James Gullenean (1550-1609) performed the operation in the presence of Ambroise Paré (1510-1590) in the year 1590 (?). His patient died during the operation. The famous surgeon Paré advised against the operation. Strange as it may seem, the first successful operation for cesarean section was performed in 1500 by Jacob Nuffer, a layman, on his own wife.—Gordon, Benjamin Lee: The Romance of Medicine, Philadelphia, F. A. Davis Company, 1944.

ARMY CONTRIBUTIONS TO POSTWAR VENEREAL DISEASE CONTROL PLANNING

LIEUTENANT COLONEL THOMAS H. STERNBERG
AND
CAPTAIN GRANVILLE W. LARIMORE
MEDICAL CORPS, ARMY OF THE UNITED STATES

It is even now apparent that the approaching demobilization period will be accompanied by many serious problems in the control of the venereal diseases. During and following previous wars the incidence of venereal disease always reached epidemic proportions. While the maintenance of low military rates during the first three years of the current conflict justifies a feeling of achievement by all concerned, it is noteworthy that since the 1st of January 1944 the Army venereal disease rate for the continental United States has risen steadily to a present level of 36 per thousand men annually as compared to the 1943 rate of 26.3. Furthermore, it is our belief, based on the following considerations, that the Army rate in the continental United States will continue to rise for some time and may even reach World War I levels:

1. It is increasingly evident that a general letdown in the overall venereal disease control program, both military and civilian, is in progress.

2. The outstanding advances in therapeutic methods climaxed by the introduction of penicillin have resulted in (*a*) better reporting of venereal disease with a decrease in the amount of concealed gonorrhea, (*b*) a definite but as yet unmeasured effect on the will of the soldier to avoid venereal disease and (*c*) a reduction in the man days lost per thousand men annually from 1,280 in 1940 to a current record low of less than 300, giving rise to a further loss of interest in prevention.

3. As the result of overseas assignment, the group of young trained venereal disease control officers initially stationed in this country has been depleted almost to the vanishing point. While this has lowered the intensity of our venereal disease program at home, it is with a great deal of satisfaction that the downward trend of the venereal disease rates in all theaters of operation is recorded. The combined overseas rate for all American soldiers is now lower than for those stationed in the United States.

4. Troops returning from overseas areas have had an abnormally high venereal disease rate of infection, acquired after arrival in this country. This is an increasingly serious problem. It can be explained in part by the effects of long overseas duty and by the belief of these men that the girls in this country are free of infection.

It is obvious that these problems affect the civilian and military alike and present a rather gloomy picture for the immediate future. Despite this, it is our opinion that in the postwar period there will exist an unprecedented opportunity to reduce the incidence of the venereal diseases to a manageable minimum. This opportunity, to be fully exploited, will require a critical evaluation of our current control measures with a view toward their strengthening and expansion and a recognition of the changing aspects of venereal disease control brought about by more effective therapeutic weapons and by the mass wartime experience with educational and case finding procedures.

It is believed that in the planning for postwar venereal disease control the Army has much to offer in the way of material assets and experiences. It is our intention in this paper to discuss specifically these contributions not only with respect to actual demobilization procedures but also in relation to the strictly civilian activities of venereal disease education, case finding and community action.

DEMOBILIZATION PLANS

During the past six months the Army, in collaboration with the U. S. Public Health Service, has developed demobilization plans in respect to venereal disease which may be outlined as follows:

1. A physical examination for venereal disease and a routine serologic test for syphilis will be performed on all soldiers within the forty-eight hours prior to their discharge from the Army.

2. All soldiers with gonorrhea and chancroid, and those with evidence of active syphilis, either early or late, will be held and treated. They will be treated until cured or, in the case of syphilis, they will receive a course of penicillin which is believed to be curative but which in any event will render the patient noninfectious.

3. Referral will be made to appropriate state health departments through the U. S. Public Health Service of (*a*) the name and civilian address of previously untreated soldiers found at the time of separation to have latent syphilis as evidenced by a positive serologic test and (*b*) all pertinent information on soldiers under treatment or previously treated by the Army, provided further medical attention is considered necessary.

The application of this plan to over seven million soldiers will be of considerable value to the overall civilian program in that it represents (1) a mass case finding procedure, (2) a uniform method of transition of partially treated or incompletely observed cases from the Army to the civilian, (3) a mechanism for detecting the previously unidentified failures to the prescribed course of treatment and (4) a method of obtaining a final evaluation of Army treatment schedules, both mapharsen-bismuth and penicillin.

In such a mass procedure some errors are bound to occur. Some of the positive tests will on investigation prove to be technical or biologic false positives, and it is important that these individuals shall not be considered syphilitic until proved so by subsequent examination. Further, it is inevitable that an occasional case of infectious syphilis or gonorrhea will escape identification during the final physical examination or will be in the incubation period at that time.

MEASUREMENT OF TRENDS

Unfortunately, our present methods of measuring incidence of infectious venereal disease in civilian populations, based on reported cases, are subject to so many errors that they are difficult to evaluate. On the other hand, the incidence rates for venereal disease in the Army reflect to a considerable degree the incidence of infectious venereal disease in the civilian community and may therefore be used in determining trends in the civilian population.

While the total Army venereal disease rate in the continental United States has risen sharply since the 1st of January, 1944, a breakdown by disease reveals the increase to be entirely due to gonorrhea. The epidemiologic picture in this disease is far from encouraging. The recent 40 per cent increase in the Army gonorrhea rate must reflect, at least partially, an increase in the

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From the Venereal Disease Control Division, Preventive Medicine Service, Office of the Surgeon General, U. S. Army.

incidence of civilian gonorrhea. Since military data invariably show a ratio of 6 to 7 cases of gonorrhea to 1 of syphilis, it may be assumed that a similar ratio prevails in the civilian population. If this assumption is true, it suggests that an enormous amount of unrecorded and presumably untreated gonorrhea exists in the civilian population and indicates the relative inadequacy of our present gonorrhea control program.

However, during the past year the Army syphilis rate has declined 20 per cent. It is hoped and believed that this decline is due to a lowering of the civilian reservoir of infectious syphilis brought about through the admittedly better case finding technics in this disease, plus the effect of the rapid treatment programs.

POSTWAR PERSONNEL RESOURCES

These figures on the disproportionate decline in syphilis and increase in gonorrhea present encouraging evidence of success in the syphilis control program which should serve as a stimulation to even greater efforts toward the elimination of this disease. They also, of course, indicate the great need for the development of an effective gonorrhea control program. The accomplishment of these objectives will to a large extent depend on the availability and proper utilization of trained or experienced personnel, and the Army will contribute greatly to this task.

Availability of Experienced Physicians During Demobilization.—During the war several thousand medical officers have received formal training or experience in the control of venereal disease and in general public health procedures. The majority of these officers were general practitioners in civilian life and will return to their offices when released. They should be encouraged to continue their interest in and support of venereal disease control as an aspect of preventive medicine. The role of the private practitioner in the control of the venereal diseases has been underemphasized. It is vital to the success of the overall program that a better relationship between the health officer and the physician be established to the end that every physician is either his own adequate epidemiologist or permits access to his patients of an accredited health department representative.

Utilization of Army Lay Venereal Disease Control Officers.—A second contribution the Army will make to civilian postwar personnel resources will be several thousand enlisted men who have had extensive training and experience in the nontechnical aspects of venereal disease control procedures. Many of these have devoted most of their Army service to taking contact histories and have become very proficient in this task; others, both white and colored, have acted as noncommissioned venereal disease control officers with considerable distinction; more than a thousand are graduates of formal courses in venereal disease control for noncommissioned officers, given at several Army posts during the past three years. The value of male nonmedical contact follow-up personnel has been demonstrated in several state health departments as well as in the Army, and it is believed that health departments and clinics should consider the employment of these individuals as they are demobilized.

INFLUENCE OF TREATMENT ON CASE FINDING

An important factor that has had a definite influence on case finding in the Army has been the introduction of penicillin in the treatment of gonorrhea. When penicillin was first made available to the Army for the treatment of this disease, many soldiers with successfully concealed infections voluntarily reported at sick call and asked for penicillin treatment. This experience would seem to have considerable significance to civilian case finding programs, indicating that at the proper time widespread publicity in respect to the availability of penicillin and its nontoxicity and effectiveness will result in many hidden sources of infection voluntarily seeking treatment.

POSTWAR COMMUNITY ACTION

During the past few years community organization and action toward the control of the venereal diseases, stimulated and assisted by the military, federal and voluntary agencies, has reached a peak of popular support and interest which will be difficult to maintain. As the end of the war approaches it is becoming increasingly evident that the danger of a serious letdown in these activities is imminent. Since in the postwar period Army support of community action will no longer have either the influence or authority as during the wartime period, it is believed urgent that all agencies and local groups concerned immediately direct their planning toward peacetime activities, justified on the basis of a permanent community need, rather than as a temporary aid to the Army in time of war.

Influence of Army Personnel in Postwar Community Programs.—In the Army, commanding officers of all grades are charged with the responsibility of maintaining health in their organizations, and by regulation they are, with the advice and assistance of the surgeon, specifically delegated the task of development and maintenance of venereal disease and preventive medicine control programs. The so-called command aspect of public health practice carries down through the noncommissioned officer to the enlisted man, and the subject is included in all training courses. Thus demobilization will return to the communities hundreds of thousands of officers and millions of enlisted men who have had first hand knowledge of the principles of preventive medicine. Many of these men are the civic leaders of tomorrow, and every effort should be exerted to assure their active participation and support in all phases of community action directed toward the control of venereal disease.

VENEREAL DISEASE EDUCATION

During the past few years the Army has enjoyed a unique experience in being able to apply, on a compulsory basis, intensive venereal disease educational procedures to large masses of men. This program, beginning at the time of the soldier's induction and carrying through to his discharge, is carried out by commanding officers, medical officers and chaplains, utilizing every accepted method of approach.

It is significant in terms of the overall civilian educational program that the Army alone will have returned to civilian communities by the end of demobilization over 9,000,000 men who have been subjected to this instruction, a circumstance which will, we hope, raise the general venereal disease educational level of the nation to a new high. With these men as a nucleus, an opportunity exists to remove forever the venereal diseases from the realm of the unmentionable.

Because of current publicity and conflicts over education as a venereal disease preventive measure it seems desirable that the Army mass experience in this phase of venereal disease control be made available. The

amount and variety of venereal disease education to which the average soldier is exposed is certainly larger and more concentrated in point of time than is currently applied to the civilian population. Further, it has been possible through observations of individual organizations to formulate opinions as to the value of various educational materials and methods of presentation. Some of these are here offered as being of possible significance in the planning of future civilian venereal disease educational programs.

First, it must be recognized that there are two distinct and separate phases of venereal disease education, (1) the imparting to the individual of adequate technical knowledge of the venereal diseases and their prevention and (2) the motivation of the individual with the will to avoid either illicit sexual intercourse or unprotected sexual exposure. Much of the confusion as to the actual role of education, and no small part of the criticism that has been leveled against it as a venereal disease preventive measure, arises from a failure to consider these two aspects as separate entities.

It must be admitted that an individual cannot intelligently protect himself against venereal disease if he does not know what the diseases are, how they are spread and the correct methods of prevention, including continence. Yet it must also be accepted that the possession of merely technical knowledge is no assurance that it will be used when needed. We have seen not one but literally thousands of examples demonstrating that possession of mere technical knowledge of the venereal diseases is of limited value as a preventive measure and that, to be effective, venereal disease educational procedures must also impart a motivation for the avoidance of venereal disease. This motivation involves complex and in many instances intangible factors, which in the Army are related to such diverse conditions as the religious and educational background of the soldier, the influence of the home and the community, the attitude of his commanding officer, the *esprit de corps* of his unit, fear of the diseases or their treatment, fear of shame or ridicule and many others, over most of which the Army has little direct control.

The Army, through the Corps of Chaplains and through venereal disease educational material, has continuously stressed continence as the most desirable and satisfactory method of avoiding venereal disease. Yet the strictly moral approach has been of limited value. This is attributed, at least in part, to the fact that molding of character and establishment of standards of personal conduct should and must be accomplished by the home, the church and the community at an earlier age. Because venereal disease is a biologic accident of the sex act an effective moral program will prevent infection, but the imparting of proper standards of personal conduct to the individual is not venereal disease education in the sense in which we are using the term and should not be so considered. Therefore the role of the physician and health officer in venereal disease control programs is necessarily limited. He can assume responsibility for the dissemination of scientifically accurate information and for the provision of adequate treatment, prophylactic and epidemiologic facilities. He can and should support and assist those educational programs designed to influence sex behavior; but he cannot be expected to assume primary responsibility for the development of moral integrity.

PROPHYLAXIS

In the Army there seems strong reason to believe that the condom has been the most valuable single venereal disease preventive measure, as evidenced by the extent of its utilization.

Chemical prophylaxis administered at a fixed station, on which great reliance has been placed in theory and in past practice, has been difficult to popularize in this emergency because of the frequent inaccessibility of stations, the time consumed in administering treatment, the messiness, occasional discomfort and lack of privacy. Early in 1943, in an effort to improve individual chemical prophylaxis, the Army in collaboration with the Subcommittee on Venereal Diseases of the National Research Council set about to develop a single tube chemical prophylactic, effective against syphilis, gonorrhea and chancroid. After considerable experimentation an ointment containing 15 per cent sulfathiazole, 30 per cent calomel, 40 per cent petrolatum, 14 per cent light mineral oil and 1 per cent cetyl alcohol was subjected to field trials at six army posts in lieu of the regular station prophylaxis. The instructions were simple and the entire procedure required only several minutes, was acceptable cosmetically, was unaccompanied by discomfort and was easily self administered. At all six of the trial stations the prophylactic rate doubled or tripled merely through the spread by word of mouth that the Army had a new and improved prophylactic. This material has now become a standard Army prophylactic item distributed under the name of Pro-Kit.

It would appear from this experience that one important reason for the failure of individual chemical prophylaxis to take in civilian life has been the unsatisfactory products available and that postwar venereal disease control planning will be incomplete without provisions to make this item freely available at a price commensurate with its cost of production.

VENEREAL DISEASE CONTROL IN NEGROES

The Negro venereal disease rate in the Army has consistently been higher than the white rate. Negro troops have received the basic venereal disease control program given to white troops, and additional specific measures have been directed from a national level. These have been ineffective in lowering the overall Negro rate. However, successful Negro venereal disease control programs are possible on a local level, as demonstrated by the consistently low rates maintained at Tuskegee A. A. F. and several other posts where large numbers of Negroes are stationed. Several of these programs were organized and carried out by superior Negro medical officers, backed by strong command support and utilizing all available control procedures, including suppression of prostitution, educational mediums, recreational facilities, religious appeals, competitions, and the training and development of Negro noncommissioned venereal disease control officers responsible for venereal disease control in their units. These local programs have demonstrated the value of employing specially trained Negro personnel, both medical and lay, and the need for a direct and personalized approach.

CONCLUSIONS

The postwar period will present far greater assets for the control of the venereal diseases than have been available at any previous time, some of which are as follows:

1. A tremendous number of physicians and lay personnel trained and experienced by the Army in the principles of venereal disease control will be available.

2. The dilution of the postwar population by 9,000,000 soldiers will raise the general venereal disease educational level to a new high, and it seems certain that future venereal disease control programs will be accorded increased public support. In this connection, efforts to reimpose a blackout on the venereal diseases are doomed to failure.

3. The remarkable advances in treatment climaxed by the introduction of penicillin will add great impetus toward achieving the goal of universal case finding and case holding.

4. Mass wartime experiences will add considerably to the venereal disease control armamentarium.

These factors, added to the stabilization of community life and the return of opportunity to follow the natural instincts of monogamous relationships, all lead to the conclusion that we shall be presented with an unprecedented opportunity to reduce the incidence of the venereal diseases to a manageable minimum.

THE CLINICAL DIAGNOSIS, PROGNOSIS AND TREATMENT OF ACUTE HEMATOGENOUS OSTEOMYELITIS

FRANK D. DICKSON, M.D.
KANSAS CITY, MO.

The title clearly defines the scope of this paper. Etiology will not be discussed; the pathologic changes occurring in bone as revealed by the x-rays have been described by Pierson and Roach.[1] It is necessary, however, in order to lay the groundwork for a discussion of the clinical diagnosis and treatment of acute hematogenous osteomyelitis that certain basic features of its etiology and pathology be commented on. The facts presented are based on the study of 295 cases of the disease treated over the period of the last fifteen years.

Hematogenous osteomyelitis is a pyogenic bone infection. The staphylococcus is the offending organism in approximately 90 per cent of all cases, usually the hemolytic Staphylococcus aureus. The next most common organism found in culture is the streptococcus; occasionally a pneumococcus is found. While the staphylococcus is the organism found in 90 per cent of cases as a whole, in children under 2 years of age, the streptococcus is far more frequently the infecting organism—from 40 to 50 per cent. The higher incidence of streptococcic infection in very young children is probably to be explained on the basis of the antecedent source (upper respiratory tract) and the fact that the infant has relatively less natural immunity to strains of streptococci than to staphylococci, as shown by the investigations of Green and Shannon.[1a]

According to our present understanding of the disease the focus of infection in bone is secondary to a primary focus elsewhere in the body, the pathway of infection being the blood stream; at least no valid reason has been advanced to disprove this view. To meet this accepted basic conception of the origin of osteomyelitis it is necessary to assume that there occurs a bacteremia, produced by a shower of bacteria entering the blood stream from a primary focus of infection already present. Once such a bacteremia occurs, clinically it may follow one of three courses: (1) The organism in the blood stream may be rendered harmless by the defensive mechanisms of the body and no general or local disease develops, (2) some of the bacteria may lodge in bone, localize and set up an osteomyelitis or (3) the bacteremia may become a septicemia, which in turn results in a pyemia with abscess formation over widespread areas, including the lungs, kidneys, spleen, liver and bone. When the second of these possibilities develops, the bacteremia disappears, usually within twenty-four to forty-eight hours, leaving behind only the local bone abscess and such systemic reaction as may arise from the local pyogenic infection in the bone. When the third course is followed, a blood stream infection persists and a pyemia develops.

When bacteria find their way to the bone and become localized there, a destructive process is set up. The area of bone infection occurs with remarkable consistency in the metaphysial region of the long bones. The generally accepted reasons for this localization are that the area has a rather large and stagnant blood supply, is an area of rapid growth and is subject in growing children to direct and indirect trauma. These reasons on the whole fail satisfactorily to explain completely the cause for fixation of the abscess in this area. Fraser[2] offers a suggestion which is certainly worthy of consideration and investigation. He holds that the reticuloendothelial tissue, which is present in abundance in the metaphysial area of growing bone, is a factor in determining the frequent localization of infection in this area. He reasons that, since one of the important functions of the reticuloendothelial system is that of acting as a defense mechanism against infection, the localization or fixation of the infection in the metaphysis is the result of the defense activities of the reticuloendothelial cells in this area in their efforts to correct a general infection. On such a basis the occurrence of a localized or fixation abscess, while it creates a regrettable and difficult situation as far as the bone is concerned, should be looked on as a providential occurrence, for it is nature's method of producing a defense area from which the factors of immunity are organized and developed. Wilensky's[3] point of view is different from the one which holds that the metaphysis is the usual fixation point for abscess formation, and he notes other points which are more frequently involved.

Once bacteria have lodged in the bone, wherever the fixation point may be, they multiply and liberate exotoxins which diffuse into surrounding bone, destroy and break down red cells, coagulate plasma and cause the death of leukocytes. Since this process occurs in tissue which is dense and hard and lacks the elasticity of soft tissue, it disperses rapidly. There occurs extensive thrombosis of vessels, and so there is less opportunity for the defense cells of the organism to wander into the inflammatory region to overcome infection and aid the connective tissue cells in walling off the area. Leukocytes appear in large numbers, but they are fighting a losing battle against the exotoxins and are destroyed, and a proteolytic ferment is liberated which autolyzes or destroys the dead bone and an abscess is formed. The pathologic changes in bone which result are many and varied, but any description of these changes will be omitted here, as they were discussed by Pierson and Roach in their presentation.

Read before the joint meeting of the Section on Orthopedic Surgery and the Section on Radiology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 16, 1944.

1. Pierson, J. W., and Roach, J. F.: The Roentgenology of Osteomyelitis, J. A. M. A. **126**: 884 (Dec. 2) 1944.

1a. Green, W. T., and Shannon, J. G.: Osteomyelitis of Infants, Arch. Surg. **32**: 462-493 (March) 1936.

2. Fraser, J.: Acute Osteomyelitis, Brit. M. J. **2**: 539-541, (Sept. 22) 1934.

3. Wilensky, A. O.: Osteomyelitis: Its Pathogenesis, Symptomatology and Treatment, New York, Macmillan Company, 1934.

CLINICAL PICTURE

The clinical picture about to be presented is not in complete conformity with views widely held. It is, however, a concept of hematogenous osteomyelitis which seems to fit the situation as it has presented itself in our clinic over the period of the last twenty-five years.

The patient with acute hematogenous osteomyelitis is usually a child or an adolescent, although osteomyelitis does occur in the adult. There may be a history of an already existing infection, such as a boil or furuncle, upper respiratory infection or middle ear disease. A history of trauma is elicited in from 25 to 40 per cent of the cases. With this background, although the disease varies greatly in severity, it is usually possible to differentiate two types of onset and, I believe, two types of the disease, based on the mode of onset and the clinical cause. At least the character of the onset of symptoms should be definitely suggestive.

In the usual case the first symptoms are pain and stiffness in the affected region—sometimes in the upper but more frequently the lower extremity. There is disinclination to move the extremity, and it is carefully guarded against jarring. Pain gradually increases in intensity, temperature rises and a mild chill may occur. At this time the limb is usually held in a position of slight flexion of the joint nearest which the infection is located. Flexion of the joint may be permitted without protest, but extension of the joint is always painful and resisted. This finding is a definitely important differential diagnostic fact. The temperature rises rather rapidly to 102-104 F. with a proportionate increase in the pulse rate to 120-130 per minute. The skin becomes hot and dry, the face flushed, the tongue coated and the urine concentrated. In from a few hours to three days the pain in the affected region becomes intense, and the patient will not permit the limb to be moved or even touched without protest. Restlessness and exhaustion due to toxemia develop. With continued high temperature there is a decrease in the intake of fluids, and signs of dehydration appear.

Locally there is definite tenderness to palpation over the involved area, usually the metaphysial region if a long bone is the site of infection. This area of tenderness to palpation, sharply localized, makes its appearance early in the disease and before local swelling, redness and warmth are evident. A careful, gentle, patient investigation with the tip of one finger will usually localize the tender point, which should be most carefully sought for, since it is the most important early diagnostic sign of osteomyelitis. Later the affected region becomes swollen, red, hot and edematous, and the pain and tenderness become more diffuse. Fluctuation does not as a rule appear until the bone abscess has ruptured through the periosteum and pus has escaped into the surrounding soft parts.

Such a clinical picture with evidence of general toxemia and definite signs pointing toward a localized bone abscess is typical of the usual form of hematogenous osteomyelitis. The patient is ill, sometimes seriously so, but the outstanding feature of the illness is evidence of a localized infection in one bone, rarely more.

The second type of onset differs from that described and should suggest, I believe, a different form of the disease. The onset is usually abrupt and is initiated with a chill, although there may be a prodromal period of one to two days during which time the patient complains of not feeling well, is listless and has no appetite. After the chill there is a rapid rise of temperature, the pulse becomes accelerated and running, the patient is restless and exhausted, dehydration quickly develops and delirium is not infrequent. The patient is seriously ill and gives evidence of an overwhelming toxemia. There may be localizing signs of pain and tenderness in the upper or lower extremity, but these are not outstanding and may be absent or masked by the serious systemic reaction. Patients presenting such severe constitutional symptoms with few or no localizing symptoms are in all probability suffering from a septicemia which is the real disease. If the septicemia persists there follows a pyemia with abscess formation in various organs and tissues of the body, including bone. That this condition should be called an osteomyelitis is, I feel, decidedly questionable, since such abscesses as may occur in bone, usually not single but multiple abscesses, seem to be incidental to the septicemia and pyemia—in other words, they are only part of the general picture of multiple abscess formation. This type of osteomyelitis has been called the fulminating form; it is resistant to all efforts at control and frequently ends fatally.

LABORATORY FINDINGS

The blood picture in acute hematogenous osteomyelitis depends on the duration and severity of the infection. As a rule in the ordinary case there is a leukocytosis of from 15,000 to 25,000 per cubic millimeter. With severe and overwhelming infection there may be little or no increase in the leukocyte count. Failure in leukocytic response is a grave sign, for it suggests that the patient's resistance is low and the effects of the infection have overcome the defense mechanisms of the body, in which case the prognosis is grave. The differential count usually shows a predominance of polymorphonuclear leukocytes.

Early in the disease the red blood cells show little effect, but as the disease progresses anemia develops, probably as the result of the destruction of red cells by the toxins liberated.

Blood cultures are important both in indicating the form of the infection and in determining the presence of a septicemia. A blood culture should be made on all suspected patients on admission to the hospital and should be repeated at intervals. In the type in which a bacteremia occurs and a localized bone abscess develops early the blood culture may be and frequently is negative. A positive blood culture persistently present indicates a true septicemia, and the outlook is extremely grave.

The antitoxic titer level is important in estimating the natural defense against the toxigenic staphylococci. The antitoxic titer of individuals varies considerably, some having a definitely lower titer than others; adults have a higher titer normally than infants and children. A low titer signifies a low natural resistance to the staphylococcic toxin and indicates that the natural defense mechanisms cannot be relied on to be of much assistance in combating the infection. It is an interesting fact that the titer in chronic osteomyelitis is invariably quite high.

DIAGNOSIS

In children in the age group of from 3 to 15 years any acute illness characterized by a sudden onset, high temperature, pain over a bone in the vicinity of a joint and a high leukocyte count should strongly suggest hematogenous osteomyelitis and a careful examination for local tenderness over a bone end should be carried

out. It is difficult to understand the frequency with which this condition is overlooked, since its incidence is moderately frequent and its distribution wide. The outstanding diagnostic finding is localized tenderness over the bone, usually a long bone, and most commonly over the metaphysis. This localized area of tenderness can usually be disclosed by a patient, gentle and searching examination.

The condition which most closely resembles osteomyelitis is pyarthrosis; the evident enlargement about the joint with the swelling confined to the outlines of the synovial pouch, limitation of motion in the joint in all directions—not merely in extension—and the less toxic early course of the disease should make it possible to differentiate between these two conditions.

Cellulitis is frequently mistaken for osteomyelitis, as its onset is similar; that is, with chills and fever. In cellulitis, however, the redness and edema appear very early; in fact, coincident with the systemic reaction, the tenderness is over the entire area of involvement, not definitely localized, the pain is much less and of a different character and the toxemia not nearly so pronounced.

Aside from these two conditions there should be little difficulty in making a diagnosis of osteomyelitis if a careful examination is made and the patient's general condition evaluated. The facts are, however, that in a very high percentage of cases osteomyelitis goes undiagnosed for days and even weeks and until extensive bone destruction has taken place. Rheumatism was the diagnosis most frequently made in these neglected cases in the past; but fortunately today, except in isolated communities, the profession has awakened to the possibility of bone infection, and an earlier diagnosis is being made with greater frequency.

PROGNOSIS

The prognosis in acute hematogenous osteomyelitis depends on whether the case is one in which there is a transient bacteremia with the formation of a local bone abscess or whether it is one in which a true septicemia is present with pyemia. In the former the prognosis as to recovery is good; in the latter it is grave, and a fatal outcome is a frequent result. Because these two types have never been separated in statistical studies, figures on the mortality rate in osteomyelitis vary widely from 2 per cent up to 30 per cent. Obviously, with such wide variation in figures, quite different types of cases are being dealt with. In the series presented there were 38 cases of acute osteomyelitis with a mortality rate of 11.2 per cent. All but 2 of the fatal cases in this group were the fulminating form with septicemia and positive blood cultures. The average mortality, as nearly as can be determined in the usual type of the disease, is somewhere around 10 to 15 per cent. The mortality in the septicemic type is well over 50 per cent—perhaps higher. There is great hope, however, that with the advent of the sulfonamides and penicillin the mortality rate in the fulminating type will be materially decreased. The mortality rate in infants is high. Green and Shannon [1] report a general mortality rate of 21 per cent, with a rate of 45 per cent in those under 6 months of age.

The prognosis, so far as healing of the local bone focus is concerned, is poor. A great majority of the patients 3 years of age or older pass on to the chronic stage; in infants, however, there is little tendency for the disease to become chronic. The difference in the behavior of bone in extremely young children compared with older children and adults has been considered to be due to three factors: (1) The infection in young children is frequently a streptococcus, which causes less bone destruction than does the staphylococcus; (2) the large cancellous spaces in the infant allow the infection to pass more readily from the site of the origin into the subperiosteal space, and the periosteum, being loosely attached in the infant, separates readily or ruptures, thus affording early drainage for the infection and insuring minimal bone destruction; (3) dead bone in young children absorbs very quickly, and new bone formation is rapid. The tendency to chronicity in older patients is largely due to inadequate treatment in the acute stage. It is to be hoped that a better understanding of the disease and its early treatment, combined with the use of the sulfonamides and eventually penicillin, will change this picture to a much more favorable one.

TREATMENT

There is at the present time considerable divergence of opinion as to the proper procedure to follow in the treatment of acute hematogenous osteomyelitis. The differences of opinion which exist over the type of treatment to be followed could speedily be harmonized, I believe, if it was recognized from the beginning that acute hematogenous osteomyelitis can as a rule be separated into that type in which the constitutional symptoms are comparatively mild, while the signs of local infection in the bone are definite and outstanding; and a second type in which the constitutional symptoms are severe and overwhelming, while the local symptoms of abscess formation are absent or masked by general symptoms. In the first type the picture is that of local infection, associated with which are the constitutional symptoms concomitant with a localized infection. In the second type the picture is that of a systemic infection, a septicemia, as a consequence of which a pyemia develops with multiple abscess formation in bone and other tissues. The basic pathologic condition and clinical course of these two types are entirely different, I believe, and consequently each demands a different kind of treatment.

In discussing the treatment of the acute stage of hematogenous osteomyelitis, the cases should be divided into two groups: group 1, infants—that is, children under 2 years of age; group 2, children over 2 years of age, adolescents and adults.

The treatment of osteomyelitis in infants should be conservative. The different reaction to infection which bones in infants display as compared with mature bones has been discussed under prognosis; it is this difference in behavior which makes conservative treatment so successful in infants. The care of the patient rather than the osteomyelitis is the important consideration. Supportive treatment, prevention of dehydration and immobilization of the affected extremity are the essentials of management.

Antistaphylococcus serum should be administered if the infection is due to the staphylococcus and if the serum is available.

The unquestioned bacteriostatic effect of the sulfonamides and penicillin should be taken advantage of. All information indicates that the sulfonamides are of definite value in controlling the disease. It seems highly probable from the present available reports that penicillin therapy will prove even more effective than the sulfonamides.

Locally the treatment should be conservative. As a rule the delicate periosteum ruptures early and pus escapes into the surrounding soft parts. When this occurs, simple aspiration through a large needle will usually take care of the situation. If it does not, the abscess should be drained. If temperature elevation and pain persist, the subperiosteal abscess probably has not ruptured and an incision down to and opening the periosteum should be made. A small opening into the bone may be made at this time if it seems advisable. Unquestionably the less surgery used in treating infants, the better is the outcome. Sequestration in infants is rare, and if it does occur it should be taken care of at a later date.

The treatment of the acute stage of osteomyelitis in children over 2 years of age, adolescents and adults is not the comparatively simple problem that it is in infants. The less favorable histologic and anatomic structure of the more mature bone makes it more vulnerable to attack by the pathogenic organisms and provides less effective and rapid drainage for pus into the subperiosteal space. Consequently more pronounced toxemia is present, more bone destruction takes place and there is a definite tendency for the acute condition to pass over into the subacute or chronic stage. In this group treatment should be carried out along several lines—general supportive measures, chemotherapy, administration of staphylococcus antitoxin and management of the local bone disease.

General treatment is very important, since the toxemia and dehydration are frequently pronounced. Relief of pain by morphine or codeine and immobilization of the affected part are imperative. Dehydration is combated with fluids by mouth or intravenous administration of saline-glucose solution. If the patient is definitely toxic and the blood count shows definite anemia or low hemoglobin, a transfusion of from 400 to 500 cc. of blood should be given, depending on the age of the individual.

Chemotherapy.—The accepted bacteriostatic effects of the sulfonamides make them a potent agent in combating infection in osteomyelitis. Since the staphylococcus is the infecting organism in about 90 per cent of the cases of hematogenous osteomyelitis, sulfathiazole is the drug which should be used; it is the most effective of the sulfonamide group for staphylococcic infection—at least the most effective of any produced up to the present time.

Staphylococcic antitoxin has not been very widely used, although at the present time highly concentrated and purified serum is available. Investigators, notably Shands and Baker,[4] report excellent results with its use. These authors report a reduction of mortality from 70 per cent in 30 cases in which the antitoxin was not used to a mortality of 25.7 per cent in 35 cases in which it was used. The high mortality rate reported by Shands and Baker would indicate that they were dealing in their series with a staphylococcic septicemia with profound intoxication. The few cases in the series reported in which antitoxin was used were of this type, and its administration failed unfortunately to alter the course of the disease and save the patient's life.

The use of penicillin seems to give promise of being a most potent adjunct to the treatment from the few reports at hand. Unfortunately, penicillin has not been available for clinical research, and no definite statement can be made as to its effectiveness at this time.

4. Baker, L. D., and Shands, A. R., Jr.: Acute Osteomyelitis with Staphylococcemia, J. A. M. A. **113**: 2119-2124 (Dec. 9) 1939.

Specific agents to control infection at the present time have not established themselves in a positive position. Toxoids which increase the immunity of the patient are too slow to be helpful; it requires about two weeks before effective immunity can be established. Bacteriophage is still on trial.

Local Treatment.—There is some difference of opinion today over the proper treatment of the local bone focus. The chief controversy is over the question of drainage; that is, whether the focus should be drained or should not be drained. This controversy has become so heated that it seems likely to confuse the whole problem of treatment to a disastrous extent. It seems worth while, therefore, to attempt to place this question of drainage on a rational basis with the hope that some good may come of it. There are two distinct schools of thought on this point: those who consider osteomyelitis an acute surgical emergency which demands drainage at the earliest moment consistent with safety and those who maintain that drainage is contraindicated and detrimental. The advent of the sulfonamides and penicillin with their bacteriostatic effects has added fuel to the flames of this controversy. Those who advocate nonintervention base their position on two premises: (1) the belief that the focus in the bone is a source of antibacterial influences which are effective in combating the general infection and, therefore, it should not be disturbed, and (2) the belief that the natural defense mechanisms of the body will take care of the systemic and local infection. Those who advocate early drainage maintain (1) that the problem is a surgical one and is not entirely one of immunology, that the general resistance of the patient cannot be expected to increase rapidly enough to combat successfully the local and general infection, and (2) that the undrained local infection in bone tends to spread and to destroy more and more bone and, therefore, surgical drainage is necessary and should be carried out at the earliest moment consistent with sound surgical judgment. While individual opinion based on experience may be for or against drainage of the bone focus, one fact seems fundamental and should be generally accepted. This is that a localized bone abscess, which is the usual type of osteomyelitis, is one thing, and a septicemia with multiple abscess formation is another. When dealing with a localized bone abscess, surgical drainage is a sound surgical procedure. When dealing with a septicemia with inconclusive signs of localized abscess formation in bone or with signs of multiple abscess formation, surgery has no place in treatment and may possibly accelerate a fatal termination. From a careful study of a wealth of material and reports, it seems probable that this differentiation has not always been made, and many patients with septicemia have been operated on who should never have been subjected to surgery. This has led many to conclude that surgical drainage is unwise and harmful—a faulty conclusion which would be rectified to a large extent, I believe, by a more careful segregation of cases by type in statistical records.

In view of the fact that it is an established surgical principle that a focus of infection with tissue destruction must be drained, it does not seem logical to depart from this principle when dealing with an abscess in bone. Bone is a tissue which, when infected, has little defense and poor recuperative power except in infants and for this reason would seem to demand drainage even more urgently than an abscess of the soft parts in order to relieve the general toxemia, reduce to a minimum the

amount of bone destruction and lessen the danger of reinfecting the blood stream with the probable development of metastatic abscesses. On this basis, my position in treatment has been drainage of the local bone abscess at the earliest moment; that is, at the earliest moment that the patient's general condition will permit, except in those cases in which the acute onset with a chill, the grave constitutional symptoms and lack of signs of a definite bone localization indicate a septicemia.

The time selected for drainage is determined by the patient's general condition. If this is relatively good and dehydration has not set in, immediate operation may safely be performed. If there is evidence of grave toxemia and dehydration, the operation should be delayed until rest, the administration of saline-glucose solution and blood transfusions convert a poor surgical risk into a safe one; this may be a matter of twenty-four hours or a week or more. In the meantime, blood cultures should be made frequently to determine whether a septicemia is present and, if so, its course.

When the decision to drain has been reached, drainage should be thoroughly established but with a minimum of surgery. An adequate incision should be made in the soft parts over the point of greatest tenderness and, following muscle planes as far as possible, carried down to the bone, which should be thoroughly exposed. Ordinarily, a window about 1 inch square should be removed from the cortex of the bone with an osteotome for adequate drainage. If haste is desirable, one or two drill holes may be substituted for window drainage. Incising the periosteum without opening the cortex of the bone does not provide adequate drainage. The wound should be lightly packed with petrolatum gauze or gauze soaked with diluted solution of sodium hypochlorite. I prefer the latter. The extremity is then immobilized in plaster or, if the patient is quite ill, by traction or sandbags.

In a fair percentage of cases with early drainage and the administration of the sulfonamides, extensive necrosis of bone will not occur, and the wound under careful aseptic dressings (Dakin's irrigation or packing with sterile petrolatum gauze) will heal by granulation. Twenty-nine out of 33 cases of acute hematogenous osteomyelitis in this series had early drainage and Carrell-Dakin treatment. Seven, or 28.5 per cent, healed without additional surgery. Only 5 of these 7 cases were treated after the introduction of the sulfonamides. Penberthy and Weller [5] report 19 cases treated by early drainage and the systemic administration of sulfathiazole. Of these, only 2 had later sequestration and required additional operation.

It is only fair to state that today there is a definite trend against early drainage of the localized bone abscess in hematogenous osteomyelitis. This position has received additional impetus with the introduction of the sulfonamides. The bacteriostatic effects which the sulfonamide drugs exert seem unquestionably to bring about the disappearance of the constitutional symptoms and control the local bone infection in some but not in all cases. These drugs, however, can have no effect on the local bone destruction which has occurred before the infection was brought under control, and the necrotic tissue which results remains as a possibly quiescent but certainly unhealed focus in the bone. As long as the x-rays reveal definite areas of bone destruction and sequestrum formation, no matter how silent the area may be clinically, the case cannot be spoken of as cured but only as one which shows a clinical recession with a quiescent bone focus. Such quiescent areas may remain dormant for years and in some cases permanently. However, an examination of a number of cases treated by the administration of the sulfonamides without drainage has shown that in practically all a careful x-ray examination revealed persistent areas of bone destruction which are readily differentiated from the surrounding normal bone. Such areas constitute potential sources of trouble in the future. Wilson and McKeever [6] report 3 cases treated by administration of the sulfonamides without drainage with subsidence of acute symptoms, in which several months later drainage was established because of persistent local induration. Thick, soft, hyperplastic bone was encountered and granulation tissue was found in the medullary canal when drainage was established. Smears and cultures revealed staphylococci. These findings clearly indicate that such quiescent foci are not really sterile but that they probably harbor dormant bacteria capable of activity.

Treating a bone abscess with the sulfonamides and without drainage may result in putting out the fire; but the ashes remain, and only too frequently ashes which have embers likely to be fanned into activity by such breezes as lowered resistance or local trauma to the quiescent area. My observations have convinced me that sooner or later a large percentage of these quiescent foci do become active. Whether penicillin proves to be an agent which, more powerful than the sulfonamides, will completely sterilize such areas of infection only time will tell. Until then the preponderance of evidence is in favor of early drainage of the osseous focus in acute hematogenous osteomyelitis except in the fulminating type with septicemia and pyemia, when the drainage of a single focus, where there are probably others present, cannot be expected to have any helpful effect but will probably do harm.

1103 Grand Avenue.

ABSTRACT OF DISCUSSION

Dr. Howard Hatcher, Chicago: In children osteomyelitis is primary in a metaphysis and not in an epiphysis. That is true of both pyogenic and tuberculous infection. It is a rare case that shows evidence of primary infection of an epiphysis. In adults, however, osteomyelitis or other infection may start in epiphysial bone. Acute osteomyelitis does not alter the bone structure for several days. The ideal time for treatment is before there has been alteration sufficient to produce changes in the roentgenogram. Usually, however, by the time the patient undergoes treatment areas of bone absorption are seen in the metaphysis. These areas of rarefaction in acute osteomyelitis do not denote the extent of the disease. They represent only the initial lesion, and extension through the shaft may have occurred by the time the bone is opened. The fate of bone in osteomyelitis depends on the age of the patient, the virulence of the infection and to some extent on treatment. It has been mentioned that in infancy bone may be killed and rapidly absorbed. Even sequestrums in infants may be absorbed without the necessity of surgical removal. The extent of necrosis of bone cannot always be determined from early roentgenograms. Sometimes necrotic bone in the presence of an organism of low virulence does not become separated and may undergo replacement by living bone. In virulent infection dead bone, particularly in the cortex of the shaft, separates

5. Penberthy, G. C., and Weller, C. N.: Chemotherapy as an Aid in the Management of Acute Osteomyelitis, Tr. South. S. A. **53**: 391-408, 1940.

6. Wilson, J. C., and McKeever, F. M.: Hematogenous Acute Osteomyelitis in Children, J. Bone & Joint Surg. **18**: 328-332 (April) 1936.

and the overlying periosteum may or may not form new bone. If periosteum is killed by the infection it fails to form an involucrum, and pathologic fracture may be the result. Another point to be considered is the fact that periosteal ossification occurs also in diseases other than osteomyelitis. It should be emphasized that periosteal new bone formation with raylike vertical striations is not pathognomonic of tumor. The onion skin appearance oftentimes cited as being typical of Ewing's tumor may be seen also in osteomyelitis. Roentgenology of bone is an interpretation of the pathologic changes within that bone. If specific terms are employed, calcification and ossification cannot be used interchangeably. Calcification implies deposition of lime salts such as is seen in necrotic tissue. Ossification, it is true, ultimately involves calcification, but only in the process of new bone formation.

DR. E. E. MANSUR, Jefferson City, Mo.: A man aged 32, with a chronic osteomyelitis of the humerus in the metaphysial area characterized by great pain and limitation of motion of the shoulder was treated with sulfonamides and general tonics over a period of six weeks, with no relief. Later it was thought that he might have a secondary infection with Vincent's disease from a primary infection found about his teeth. Since 50 per cent of all of us harbor Vincent organisms in our mouths, I think we shall see more and more of it, because dentists are not taking an active interest in Vincent's disease. This man having been treated in the usual orthodox manner with heat, massage, restoratives and sulfonamides, without any benefit, was given neoarsphenamine with dramatic effect. Within twenty-four hours his pain had been relieved far more than any other therapeutic measures had accomplished. He was given weekly injections. At the end of a month he was completely well, although the bone changes had not been great, as shown by subsequent roentgenograms. His reaction to arsphenamine, given because of definite dental Vincent's infection, with failure of all other forms of therapy and occurring almost overnight, suggests that Vincent's spirillum is perhaps one of the causative organisms of osteomyelitis. The x-ray changes were those of a periostitis. The case was followed for three months, when after its incipient stage subsequent films showed perforation of the cortex; but the changes were not those seen in syphilis of the bone. This patient had a negative Kahn reaction.

DR. CARL E. BADGLEY, Ann Arbor, Mich.: I was quite impressed by Ward McNeil's demonstration of the effectiveness of his bacteriophage. I have been impressed with the efficacy of Ward McNeil's synthetic bacteriophage in the treatment of staphylococcic infections. In 13 septicemias there were 12 survivors, one of the lowest death rates by any form of treatment. In our clinic we did just as Penberthy and Wallard did, and treated our patients by the usual surgical procedures plus oral sulfonamide. Second, we tried oral sulfonamides alone and were dissatisfied. Third, we tried oral sulfonamide and drainage of abscess in soft tissue only. Fourth, we tried the procedure which is my thesis, that one can improve the possibility of cure of this condition by early operation, by drainage of the metaphysial area, by implantation locally of the sulfonamide or penicillin in addition to the oral method. From the good results in chronic osteomyelitis we felt we might close the wound after draining the bone, and we have primarily closed the wound after we have instilled sulfonamide or penicillin into the wound. We have then closed it and have had excellent results, with the exception of 1 case in which it was necessary to open and drain further.

DR. FRANK D. DICKSON, Kansas City, Mo.: Two cases of osteomyelitis treated with systemic medication (sulfonamides and penicillin) but with no local drainage showed extensive bone destruction and still active bone foci after eight weeks and several months, respectively, from the date of onset. The third case, which was treated by the systemic administration of the sulfonamides and local drainage, showed a minimum bone destruction and complete healing within nine weeks of the onset. The importance and necessity of early drainage in acute hematogenous osteomyelitis with localized bone abscess is thus suggested.

Clinical Notes, Suggestions and New Instruments

INTRAVENTRICULAR PENICILLIN

A NOTE OF WARNING

HERBERT C. JOHNSON, M.D., AND A. EARL WALKER, M.D.
CHICAGO

The intraventricular use of penicillin has been suggested for cases of meningitis which do not respond to the parenteral or intrathecal modes [1] of administration. Since reports of penicillin given in this manner are rare, it seems pertinent to present the following case, which emphasizes certain reactions to the intraventricular injection of the drug:

D. K., a boy aged 22 months, was admitted to Bobs Roberts Hospital on April 25, 1944. His parents stated that for the previous two months they had noticed that the child was becoming increasingly irritable. Two weeks before admission the patient had vomited four to six times over a period of three days. About the same time they had noticed that he was unable to turn his left eye outward. Birth, developmental and family histories were noncontributory to the present illness.

Physical examination at the time of admission revealed that the child was well developed and well nourished and was not in acute distress. The physical examination, except for the neurologic findings, was normal. His head was obviously enlarged, measuring 52 cm. in occipitofrontal circumference. The scalp veins were prominent over the temples. Macewen's sign was strongly positive. There were 3 diopters of papilledema bilaterally and a left abducens palsy. The tendon reflexes were slightly hyperactive, and the plantar responses were bilaterally extensor. The neurologic examination was not otherwise abnormal.

Laboratory examination showed a red blood cell count of 5,350,000, a white blood cell count of 17,450 and a hemoglobin of 12.5 Gm. The sedimentation rate was 42 mm. per hour. Differential count and urinalysis were normal. The Wassermann test on the blood was negative. Cultures of the nose and throat grew no pathogenic organisms.

The patient's temperature at the time of admission was 37.8 C. (100 F.). Three days later the temperature was 39 C. (102.2 F.) and it was found that the child had a left otitis media. A left myringotomy was performed, obtaining a small amount of thin pus, culture of which was sterile. The patient was given 0.5 Gm. of sulfadiazine every four hours.

Roentgenologic examination revealed a normal chest and normal mastoid air cells. There was no radiologic evidence of a lead line in the wrist. Roentgenograms of the skull showed diastasis of the sutures. An electroencephalogram showed increased electrical activity ranging from about 1 to 11 per second. There was no localization of the abnormal activity.

The clinical impression was that the child was suffering from internal hydrocephalus. It was thought that the most likely etiologic factor was a medulloblastoma of the cerebellar vermis. By May 4 the otitis media had cleared and the child's temperature was normal. Because of the patient's age, it was deemed advisable to do a decompressive procedure followed by x-ray therapy rather than a suboccipital craniectomy.

Accordingly, on May 4, with the child under ether anesthesia, bilateral perforations were made in the posterior parietal regions. No subdural hematoma was found, and exploration with the brain puncture needle encountered no abscess nor unusual resistance. The right lateral ventricle was then tapped, and 5 to 10 cc. of clear fluid escaped. There did not appear to be much tension within the ventricular system, and there was only a moderate increase in ventricular fluid. A catheter was then inserted through the tract of the brain puncture needle and left in the ventricle. To the external end of this catheter had been tied a condom. The wounds were then closed.

The day following operation, x-ray therapy was started. During the succeeding eleven days the patient received about 750 roentgens (depth dose), a posterior port and two lateral

From the Division of Neurological Surgery of the University of Chicago.

1. McCune, W. S., and Evans, J. M.: Intraventricular Penicillin in the Treatment of Staphylococcic Meningitis, J. A. M. A. **125**: 705 (July 8) 1944.

ports being used. Beginning on the day of operation ventricular fluid was aspirated from the condom at periodic intervals as indicated in the table. During the first postoperative week the patient did very well. The temperature remained normal and the child was eating well, seemed cheerful and in no distress. Sulfadiazine, which had been stopped on the day of operation, was given again in doses of 0.5 Gm. every four hours on May 7. On May 11 the temperature reached 39.4 C. (102.9 F.) and on the following morning the aspirated fluid was faintly cloudy. Cultures of this fluid were sterile, but fluid aspirated two days later contained Staphylococcus albus. Since the administration of sulfadiazine (the blood level of which varied between 11.2 and 17.5 mg. per hundred cubic centimeters) did not appear to be controlling the infection, it was decided to give the patient penicillin.

In spite of the elevated temperature, the child did not appear ill and seemed to be in excellent condition. On May 15 the patient was given 100,000 Oxford units of penicillin in six intramuscular doses (10,000 units per cubic centimeter of isotonic solution of sodium chloride). On May 16 it was decided to administer the penicillin intraventricularly through the catheter. On this day at 4 p. m. 50,000 Oxford units of penicillin was given intraventricularly in 5 cc. of isotonic solution of sodium chloride. At 5 o'clock the child was found unconscious in a state of collapse. The blood pressure was unobtainable and the pulse was faint and thready. The skin was cold and ashen. There was pronounced stiffness of the neck. The extremities were flaccid, and the tendon reflexes were absent.

Laboratory and Clinical Observations

	Ventricular Fluid						
	Leukocytes						
May 1944	Total	Percentage Polymorphonuclear	Protein, Mg. per 100 Cc.	Culture	Intraventricular Penicillin (1,000's Units)	White Blood Cells (1,000's)	Highest Temperature, C.
4	127	0	35	...	..	14.5	39.2
5	900	5.0	44	...	..	....	39.6
6	125	...	47.5	...	..	....	39.0
12	...	...	....	Negative	..	9.2	38.6
13	1,500	3.0	....	...	..	....	39.8
14	1,300	21.0	196	Staph. albus	..	....	39.2
15	1,500	41.0	191.3	Staph. albus	..	22.1	39.6
16	856	55.0	106.4	Staph. albus	50	26.0	39.2
19	744	55.0	234	Staph. albus	30	....	40.2
20	836	57.0	105.6	Staph. albus	30	11.4	40.6
21	519	60.0	78.8	Negative	30	....	38.2
22	266	38.0	103.3	Negative	30	4.4	39.0
23	...	....	.....	...	..	6.7	37.6

The condom was removed from the catheter to allow free drainage of ventricular fluid, and a hypodermoclysis of 500 cc. of isotonic solution of sodium chloride was started. After fifteen to twenty minutes the patient began to move his eyes slightly and to respond faintly to painful stimuli.

At 7 p. m. the patient had a generalized convulsion lasting several minutes. One grain (0.06 Gm.) of phenobarbital sodium was given intravenously and 2 grains (0.13 Gm.) subcutaneously. During the course of the next hour the patient had frequent paroxysmal generalized clonic spasms of the arms, legs and neck. About midnight he began to respond and by morning was sitting up in bed playing with his toys. On May 17 the ventricular catheter slipped out when the dressing was changed. During the next two days, May 17 and 18, the temperature was normal and no penicillin was given. On May 19 the temperature rose to 39.8 C. (103.6 F.). The patient did not, however, appear ill. At 10:30 a. m. he was given 15,000 Oxford units of penicillin in 3 cc. of isotonic solution of sodium chloride through a ventricular puncture needle introduced into the right lateral ventricle. Four hours later the patient was conscious and responsive but was having frequent twitchings of the right arm and leg. These lasted for several hours. At 6 p. m. that day another 15,000 Oxford units of penicillin was given intraventricularly. The patient had been started on phenobarbital 0.06 Gm. twice a day on May 17, and no further convulsive movements were seen after May 19. For the following three days, May 20, 21 and 22, the child was given 15,000 units of penicillin intraventricularly each morning and each evening.

The patient gradually began to improve. Within a week his temperature subsided to normal values. On June 7, 1944 the patient was discharged. At that time he was up and walking with a normal gait. There was a very minimal papilledema of the nasal margin of both disks. External ocular movements were normal. The tendon reflexes were intact, and motor power was good.

On July 31 the patient was seen again in the outpatient department. Although he had had no further roentgen therapy, he had been quite well since discharge from the hospital. His right optic disk was normal. External ocular movements were full. He presented no abnormalities on physical or neurologic examination.

COMMENT

The original disease from which this child suffered cannot be diagnosed with certainty at this time. It is possible that the internal hydrocephalus was the result of a cerebellar medulloblastoma which melted away with the roentgen therapy or equally possible that it was due to serous meningitis or arachnoiditis. The genesis of the infection in the child would appear to be due to the relatively poor ventricular drainage, so that Staphylococcus albus, normally found in the skin, gained access to the ventricular system. That the child had little systemic reaction to the infection except for the fever suggests that the organism was avirulent or that the child had a high degree of immunity.

At the time of the administration of the intraventricular penicillin it seemed probable that the vascular collapse and convulsive seizures were to be associated with his infection rather than with the medication. The dosage of penicillin was perhaps higher than necessary, but we had no information on this point at that time. When the infection returned after the first intraventricular injection of penicillin, a much smaller amount of penicillin was used for intraventricular injection and the child was carefully watched for ill effects. That twitchings occurred in the right arm and leg would indicate that local irritation at the site of brain puncture was not responsible, because the drug was injected into the right lateral ventricle. Perhaps the convulsive manifestations were minimized by the rather large doses of phenobarbital given the child. It is interesting to note that subsequent intraventricular injections had no apparent ill effects.

Whether the injection of the drug was responsible for the reaction or merely coincidental with an exacerbation of the primary disease process may now be answered in view of further studies. A critical review of the history leads one to the conclusion that the intraventricular injection of the drug was too closely associated with the reactions to be merely coincidental. The child until the time of intraventricular injection did not appear ill but was quite active and alert. The similarity of the convulsive aspects of the reactions are noteworthy. That subsequent injections of the drug did not result in ill effects does not eliminate the possibility that the drug was responsible for the first two reactions. This case stimulated further experimental investigations of this hypothesis. While these studies are not yet complete, it is evident that in cats and dogs intraventricular injection of penicillin may result in convulsive seizures or death due to circulatory collapse. Moreover, electroencephalograms of many patients receiving penicillin are distinctly abnormal. Penicillin applied to the cerebral cortex of monkeys, dogs and cats in doses as low as 500 Oxford units will induce clinical and electroencephalographic manifestations of convulsions. For these reasons we believe that the reaction in the case reported was due to the injection of the penicillin within the lateral ventricle of the cerebrum.

It seems probable that this severe reaction was due to some idiosyncrasy to the drug, because in other patients as much as 100,000 Oxford units of penicillin has been injected intraventricularly without untoward effect. That such severe reactions may occur, however, should deter one from the intraventricular use of the drug unless absolutely necessary.

SUMMARY

A patient with Staphylococcus albus infection of the ventricular system was treated with intraventricular injection of 50,000 Oxford units. Within an hour the patient was comatose and in vascular collapse. Supportive therapy improved the condition, but the patient had clonic spasms of the arms, legs and neck for several hours. Within a day the patient appeared normal. Two days later, when the infection became recrudescent, 15,000 Oxford units of penicillin was injected into the

right lateral ventricle. Four hours later the patient had twitchings of the right arm and leg, which disappeared in a few hours. After further intraventricular injections of penicillin without reaction the patient recovered completely. A critical analysis of the case and experimental studies on man and animals support the hypothesis that the intraventricular injection of the drug was responsible for the reactions. It is suggested that intraventricular penicillin be used in small amounts and with caution.

OCCUPATIONAL DERMATITIS CAUSED BY GERMICIDAL POWDER "MICROLENE"

ALEXANDER STERLING, M.D., PHILADELPHIA

Mrs. L. H., aged 26, a waitress, married eight years, with 1 son aged 7 years, first called at the office June 7, 1944 with a severe dermatitis of four years' duration.

She had been in good health until shortly after she changed her place of employment. She had a maculopapular eruption (areas of serous exudate covered with crustations and areas of parchment-like induration with a severe inflammatory base). The lesions began from the tips of the fingers of both hands, extending over the dorsum of the hand and the anterior and posterior surfaces of the forearm and arm, more pronounced on the flexor surfaces of both forearms, where the induration and erythema were extreme. In the last year it had also spread to the back of the neck. The rash was accompanied by severe pruritus, especially at night, and for weeks at a time the patient obtained little sleep.

While at work, whenever she entered the kitchen, fumes and steam from dishwashing machines produced pruritus on the exposed parts of her body, especially the hands and neck. The condition was unchanged in winter or summer, although it varied in intensity from time to time. The management of the firm where she was employed as a waitress referred her in the course of the four years to various skin clinics and to several dermatologists, but she obtained no relief.

The patient had had the usual childhood diseases. Otherwise the history was noncontributory. The menstrual history was normal. There was no other personal family allergy.

Laboratory examinations gave physiologic findings for blood count, blood chemistry and the urine. The Wassermann reaction was negative.

A complete allergic investigation was made. The patient was tested for foods, inhalants, pollen, bacteria, molds and dust with no positive reactions. After considerable painstaking questioning, the following outstanding facts strongly suggested that this was an occupational dermatitis:

1. Although she had been a waitress for many years, she recalled that in the first week at this new establishment she had assisted at the dish washing for a day, and her fingers and hands began to itch for a short time.

2. The induration was always more pronounced on the flexor surfaces of both forearms, this being where she carried the dishes. Although the dishes were thoroughly dried after the washing machine, I suspected that enough of the chemicals used in the washing machines remained on the dishes to produce contact dermatitis (plus moisture from the skin).

3. The fingertips and fingers remained always either split and oozing or crusted, evidently because of constant use of damp cloths to wipe the tables, which retained enough of the chemicals previously used in washing the dishes.

4. The mere presence of the patient in the kitchen during dish washing time was sufficient to produce extreme exacerbation of the existing pruritus, presumably from the steam containing the chemicals in the dishwashing machines.

5. On further investigation it was found that, in addition to soap powders, a germicidal powder called "Microlene" was used in the dishwashing machines. Patch tests were made with the soap and Microlene powders. Soap powders were negative, but the Microlene chemical produced a strongly positive reaction (plus 4).

6. The patient was advised to abstain entirely from work. Within two weeks she was completely free from any dermatitis and pruritus.

COMMENT

The germicidal chemical powder "Microlene," used in dishwashing machines of a certain chain restaurant, has a warning on the label stating that "it may produce a skin irritation in those handling it while dish washing."

I doubt that the restaurant management or the firm ever suspected that it could produce a dermatitis so severe from such presumably indirect contact as handling the dry dishes after several rinsings, or the cloth used to wipe the table on which the dry dishes were placed, or just being in the room with the vapors.

SUMMARY

A germicide used in dish washing was found responsible for a severe dermatitis and pruritus of four years' duration. The patient was a waitress who had no direct contact with the chemical. It was not recognized previously as the etiologic factor, because her contacts with this germicide were indirect and seemingly unimportant.

1737 Chestnut Street, Philadelphia 3.

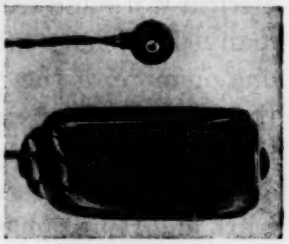
Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

RADIOEAR, MODEL 45-M, ACCEPTABLE
(Magnetic Air Conduction Receiver)

Manufacturer: E. A. Myers & Sons, 306 Beverly Road, Mount Lebanon, Pittsburgh 16.

Model 45-M Radioear with magnetic air conduction receiver is a three vacuum tube instrument consisting of a transmitter, a midget magnetic receiver and a battery unit.



Model 45-M Radioear

Dimensions. — Transmitter 4 inches by 2 inches by ¾ inch. Receiver, magnetic, ¾ inch in diameter. Transmitter, receiver and cords weigh 5 ounces. Batteries weigh 12½ ounces.

Batteries. — A battery, 1.5 volts; current drain at full volume, 79 milliamperes. B battery, 45 volts; current drain at full volume, 1.1 milliamperes.

Acoustical Gain.—Observations were made by trained observers using fitted ear molds in a tone field, within a sound proof room, seated 5 feet from a loud speaker delivering frequencies of pure sine wave characteristics. The readings are in decibel gain.

Volume Control Set at	Position of Tone Control	Frequency						
		256	512	1,024	1,448	2,048	2,896	4,096
⅓	Center	13	12	13	16	13	13	3
⅔	Center	15	14	23	22	20	17	6
Full	Center	18	17	26	18	23	22	8

Overall gain for speech 45 decibels.

Physical and Mechanical Features.—The instrument consists of a black plastic case of pleasing appearance. The front surface design is indented. The on and off switch, which is also the volume control, is a knurled disk placed at the top of the transmitter. A tone control at the upper right hand corner gives three distinct frequency emphases. The aid is divided into discrete sections, each of which can be replaced by a service part when servicing is needed. This can be done at the dealer's office without using a soldering iron to make the connections.

Performance.—The instrument operates in a completely satisfactory manner. There is an absolute minimum of case noise, little if any distortion at maximum intensity. Cord noise and feedback squeal are negligible. The three position tone control operated as represented.

Recommendations.—The Council on Physical Medicine voted to accept the Radioear, Model 45-M (magnetic air conduction receiver), for inclusion in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 27, 1945

1945 DUES NOW PAYABLE

As a convenience as well as a reminder to those Fellows and subscribers who have not paid their 1945 annual dues, a colored remittance slip is enclosed in this issue of The Journal. These slips take the place of personal bills. If each subscriber and Fellow whose 1945 dues are not yet paid will send his remittance promptly, a vast amount of clerical work and expense will be saved. Since many physicians subscribe to *Hygeia* and to one or more of the A. M. A. special journals, the names and subscription rates of these publications are also listed on the slip. The ones desired may simply be indicated by a check mark and remittance included with the annual dues. The colored slip is cut to form an envelop when folded and does not require a postage stamp.

PENICILLIN IN WARFARE

A supplement to the July 1944 issue of the *British Journal of Surgery* presents a symposium on penicillin in warfare. In a foreword Major Gen. L. T. Poole states that employment of penicillin in the most forward surgical units as a prophylactic against wound sepsis emerges as perhaps the greatest application of the lessons learned. Under battle conditions a long interval must sometimes elapse before definitive surgical measures can be undertaken. Penicillin can be used to bridge this gap and delay, modify or even prevent the development of sepsis. Florey and Jennings point out that the substance is the most powerful antibacterial agent which has yet been brought into clinical use. Pure penicillin is likely to remain for a long time a chemical curiosity, but its antibacterial capacity is well established. It will completely inhibit the growth of the most sensitive organisms, such as the gonococcus and staphylococcus, when diluted at least 1 : 50,000,000. Penicillin was shown experimentally to be bacteriostatic and not bactericidal. Its action was not significantly impaired by serum, blood, pus or tissue autolysates. In general, gram positive organisms and the gram negative cocci are sensitive and the gram negative bacilli insensitive, but some species show strain variation. The early work on penicillin showed it to be remarkably nontoxic to the body tissues.

The rapid absorption and elimination of penicillin, whether after injection or from a wound surface, suggest that relatively large doses should be given and frequently repeated. For systemic administration intramuscular or subcutaneous injection is usually used. Excretion of the drug is so rapid that probably little advantage is to be gained by increasing the single dose above 15,000 units, the size originally established as generally effective.

Lieutenant Colonel Jeffrey stresses that the treatment of battle casualties demands the intelligent combination of resuscitation, operative surgery and chemotherapy with its specific action against the common bacterial invaders of war wounds (staphylococci and clostridia in the early stages and streptococci in the later stages). Penicillin is the most effective and least harmful agent yet discovered. The drug has three main spheres in war surgery: (1) to prevent infection of the wound soon after wounding, (2) to control infection in the first two weeks and (3) to combat sepsis in the later stages. It is in the control of infection in the first two weeks, that is, at the forward base hospitals, that greatest value can be expected from penicillin. The tissues are fresh, the infection is recent, the organisms are not shut away in fibrous tissue and sequestrums, and have not become intractable and insensitive to chemotherapy. In general, systemic therapy is the method of choice in large traumatized areas that are inaccessible to local powder or solution and accessible only to the drug circulating in the blood stream. This involves most of the severe casualties, such as fractures, gas gangrene, septicemic states, amputation stumps and multiple severe flesh wounds. Lieutenant Colonel Bentley reports the results in a consecutive series of 200 casualties with flesh wounds treated by early secondary suture with local penicillin. Primary healing was obtained in 190 (95 per cent). These wounds were typical of soft tissue battle injuries, and the results show that in the presence of penicillin wound infection is controlled and that a high proportion of success follows early secondary suture. Lieutenant Colonel Brown reports much the same results. He feels that they are so good and the period of morbidity is so lessened that all soft tissue wounds, however small, should be sutured with the aid of penicillin. However, he warns that penicillin has in no way replaced and

can never be a substitute for thorough primary surgical treatment.

Furlong and Clark state that penicillin failed to control sepsis fully and did not diminish the incidence of chronic infection in open fractures of the femur. They stress, therefore, that penicillin is not a substitute for surgery and that the greatest care and attention must be given to surgical technic and to fundamental surgical principles. Jeffrey treated 33 cases of gas gangrene, with mortality of 36.4 per cent. He believes that penicillin has a definite place alongside surgery and antiserum in the treatment of gas gangrene.

D'Abreu and his associates treated 64 severe chest wounds with penicillin. They have been particularly impressed with the capacity of the pleural cavity to retain instilled sodium penicillin for as long as three days. This means that a reservoir of the best known bacteriostatic agent can be maintained at the site of infection. Conversely, passage from the blood stream into the pleural cavity is slight. The method of intrapleural instillation is thus both more economical and far more effective than that of parenteral therapy. As a prophylactic against infection, penicillin is of great value and has been used in major thoracotomy operations with satisfactory results. The authors recommend that in the forward areas the attempt to prevent infection of hemothoraces should consist in thorough aspiration combined with penicillin instillations. This would appear to offer the best hope of preventing the present high rate of hemothorax infections seen in the theater of war.

The most brilliant results with penicillin were obtained in the treatment of gonorrhea. Major Robinson of the U. S. Army reports 1,000 cases of sulfonamide resistant gonorrhea treated with penicillin, of which 94.7 per cent were free from gonorrhea after one course of treatment with 100,000 units of penicillin given intramuscularly in 10,000 unit doses every hour or in 20,000 unit doses every three hours. In this series 5.3 per cent required the second course of penicillin, varying from 100,000 to 150,000 units. Seven per cent had developed complications other than posterior urethritis. Penicillin hastened recovery in this group. There were no serious toxic reactions. Of 100 cases of acute gonorrhea previously untreated, 97 per cent responded successfully to one course of 100,000 units of penicillin and only 3 per cent required an additional 100,000 units. The author concludes that penicillin is the most effective agent for treating all types of gonorrhea. If the supply was unlimited it would be the therapy of choice.

Wise and Pillsbury of the U. S. Army confirm in general the report of Mahoney and his associates on the rapid spirocheticidal effect of penicillin in men, the prompt regression of early syphilitic lesions and the absence of significant reaction to treatment. Penicillin therapy in syphilis offers possibilities of great importance to military personnel, since prolonged treatment with arsenic and bismuth is impossible to carry out continuously under many conditions in a theater of operations. The immediate effects of penicillin therapy are superior to those observed after intensive arsenotherapy.

CONCENTRATED INFLUENZA VACCINE

In 1942 Hirst and his associates [1] of the International Health Division, Rockefeller Foundation, developed a new method of concentrating influenza vaccine from allantoic fluid infected with virus. When allantoic fluid from 13 day old infected chick embryos is frozen and thawed, a fluffy white precipitate appears. From 90 to 95 per cent of the virus is usually carried down in this precipitate. The precipitate goes back into solution when the fluid is warmed to 37 C.

While the temperature was kept at approximately 0 C. the precipitate from a large volume of infected allantoic fluid was removed by centrifugation and resuspended in one tenth the original volume of supernatant fluid. The resulting tenfold virus concentrate was then devitalized by the addition of 0.4 per cent formaldehyde solution. Equal volumes of type A and type B concentrate thus prepared were mixed and thoroughly homogenized. The homogenized mixture was distributed in ampules in 25 cc. amounts, frozen and vacuum dried.

As a test of the immunizing power of this bivalent vaccine the dried product in each ampule was dissolved in 50 cc. of warm saline solution and 2 cc. of the resulting solution injected subcutaneously into each of 100 human volunteers. Two weeks after this injection the mean antibody titer of the volunteers was higher than that previously obtained with nonviable vaccines. It was at least as high as the peak titer which follows the injection of similar amounts of living virus concentrated by centrifugation. Six to nine weeks later the antibody titer showed a pronounced drop from the two week level, with a still further drop by the end of five months.

During the last two years [2] the prophylactic efficiency of this concentrate has been tested in seven different penal institutions in five widely separated states. The tests were made on about 3,000 volunteers, with an equal number of nonvolunteers serving as controls. The vaccine was injected subcutaneously in 1 cc. volumes. Slight redness and swelling at the site ot the injection with a moderately sore arm were common for twenty-four hours, with a mild febrile response in about 1 per cent of the cases. Titration of the serums of the vaccinated inmates two weeks later showed an average specific antibody titer five times that of the prevaccina-

1. Hirst, G. K.; Rickard, E. R., and Whitman, L.: Proc. Soc. Exper. Biol. & Med. **50**: 129 (May) 1942.
2. Hirst, G. K.; Rickard, E. R., and Friedewald, W. F.: J. Exper. Med. **80**: 265 (Oct.) 1944.

tion average of the same persons. The average titer fell to 2.5 times the prevaccination level by the end of eleven to fourteen months.

The Commission on Influenza [3] found that the prophylactic effects of influenza vaccines are greatest during the second week following injection, at which time it reduces the average attack rate of influenza by about 85 per cent. The postvaccination immunity decreases in efficiency after the second week, affording but a 40 per cent reduction in the attack rate by the end of six weeks. Hirst found that the average attack rate from eleven to fourteen months later was 5.5 per cent with his nonvaccinated controls, while the rate was 3.6 per cent with the vaccinated inmates. The reduction in attack rate was therefore about 35 per cent, which in his opinion is "insufficient for practical purposes."

Hirst concludes that "there would be much greater economy in the administration of vaccines of this type if they were given in the face of an outbreak, after its identification, rather than if the vaccine was administered in advance of each epidemic season, since the exact seasonal onset and yearly periodicity of influenza epidemics is too capricious to permit accurate prediction." Other investigators [3] have shown that influenza immunity may be expected within eight days following administration of a nonviable vaccine.

3. Commission on Influenza, a Clinical Evaluation of Vaccination Against Influenza, J. A. M. A. **124**: 982 (April) 1944.

Current Comment

MEDICAL EDUCATION AND INDUSTRIAL HEALTH CONGRESSES CANCELED

In response to the urgent request of the U. S. War Committee on Conventions and in accordance with the plea of the director of War Mobilization and Reconversion, James F. Byrnes, the Annual Congress on Medical Education and Licensure, which had been scheduled to meet at the Palmer House in Chicago February 12 and 13, and the Annual Congress on Industrial Health, scheduled for the Drake Hotel February 13-15, have been canceled. The decision not to hold these important meetings was made only after careful consideration of all the factors involved. The schedules of these congresses had been planned to deal principally with problems connected directly with the war effort. In order that the material prepared may be made widely available, those who were to have appeared on the programs of these congresses will be asked to send their papers to the respective secretaries of the Council on Medical Education and Hospitals and the Council on Industrial Health. These papers will then be considered for publication in full or in abstract in THE JOURNAL and will be included in full in special reprints which will be available to interested persons.

A PRACTICAL METHOD FOR DETERMINATION OF BLOOD VOLUME WITH THE DYE T-1824

A number of methods have been devised for determination of blood volume; the dye method of Keith and Rowntree has probably been of the greatest clinical value. The method, however, with the modifications introduced in order to secure greater accuracy, has become elaborate and time consuming and requires expensive equipment. Gregersen [1] has described a new dye method which was recently developed for the armed forces. The new technic is the result of several years' work on various aspects of the dye method and of two years' experience with blood volume measurements in various types of experimental shock in animals and in the study of shock in man. According to Gregersen the assumptions on which the determinations of blood volume are based have been extensively tested under abnormal as well as normal circulatory conditions and have been confirmed by factual data. From this evidence it is possible to define the limits of the error introduced by simplifying the determination on man and to show that this error is negligible in comparison with the reduction in blood volume observed in shock caused by trauma or hemorrhage. Briefly the method includes the following steps: 1. The plasma concentration of the dye T-1824 is measured with the portable Decade Photometer designed by Nickerson. 2. The total plasma volume is obtained from the dye concentration in a single blood sample drawn ten minutes after the dye injection. 3. The critical and troublesome procedure of measuring out an exact amount of dye at the time of making the determination is eliminated by using ampules containing a standard amount of dye solution of known concentration. This also eliminates all calculations from the determination of total plasma volume. By reference to a chart the plasma volume is obtained directly from the Decade Photometer reading. The total blood volume is then calculated from the plasma volume and the hematocrit. 4. The hematocrit may be determined with the copper sulfate-specific gravity method instead of with a high speed centrifuge. With the addition of the latter technic all the equipment is readily portable. This method makes it possible to determine the plasma volume and the total blood volume rapidly and with sufficient accuracy for practical purposes. Since the reduction in blood volume precedes the appearance of the symptoms of shock, it constitutes a valuable prodromal sign. Early determination of blood volume may therefore be useful as a means of predicting whether or not shock is impending. With this information available, shock can be combated before it develops. Intravenous therapy aims to achieve restoration of the normal volume as well as the normal composition of the blood.

1. Gregersen, Magnus I.: A Practical Method for the Determination of Blood Volume with the Dye T-1824, J. Lab. & Clin. Med. **29**: 1266 (Dec.) 1944.

The data furnished by the hematocrit and plasma protein measurements may be misleading. Gregersen points out that the danger lies not only in failure to maintain an adequate blood volume but also in the excessive use of plasma and of other blood substitutes, thereby running the risk of inducing heart failure or pulmonary edema. In these cases a determination of the blood volume provides a reliable guide to therapy.

EXPERIMENTAL HYPERCHROMIC ANEMIA

Currently no entirely satisfactory experimental procedure is available for the assay of the anti-pernicious anemia factor. Much interest, therefore, attaches to a recent report by Davis [1] on the production of a hyperchromic anemia in dogs. Choline chloride in doses of 10 mg. per kilogram of body weight was administered once daily by mouth for twenty-five days and then the same amount was given three times a day. A reduction of 30 to 43 per cent occurred in the number of erythrocytes, with a concomitant increase in the color index and also in the relative volume index. The anemia would therefore appear to have hematologic aspects of pernicious anemia. Furthermore, intramuscular administration of purified liver extract and of dried stomach brought about a remission of the condition accompanied by mild reticulocytosis, despite continued choline feeding. The suggestion is made that retardation in erythropoiesis is brought about by the choline through vasodilatation in the marrow, thus producing the observed anemia. Whether or not these promising observations lead to an experimental method for estimating quantitatively the anti-pernicious anemia factor depends on further coordinated laboratory and clinical investigation.

SPECIAL SCHOOLS FOR CHILDREN WITH HEART DISEASE

The Jesse Spalding School is one of four elementary schools in Chicago designed to furnish normal school and environmental education for physically handicapped children. Children with cardiac disorders have been admitted to these schools as a group through the influence of the Chicago Heart Association since 1924. Recently Kohn and McEldowney [1] surveyed a group of children who attended the Spalding school. The survey covered approximately a ten year period. Of the 130 examined and interviewed, 104 had either improved or remained in the same cardiac classification since leaving the school. The youngest was 17 years of age and the oldest 33 at the time of the recheck physical examination. There were 65 males and 65 females. Thirty-two of the women were married; 14 had borne 1 child, 3 had 2 children, 1 had 3 children, 2 had had four pregnancies and 2 were pregnant at the time rechecked. None of them reported that the heart condition had adversely influenced the pregnancy or labor to any great extent. Almost all in the group were working, and their jobs covered a wide range of occupations, including a commercial artist, an office worker, a butcher, a plumber's helper, a coal man, a truck driver, a waitress and a soldier. The investigators concluded that a special school for cardiac children can carry on where the convalescent home leaves off and enables the long continuance of the kind of medical supervision which a child with rheumatic heart disease requires. Such a school also makes for a more normal life for cardiac children of school age with limited capacity for activity and, through the contacts made with parents as well as children, facilitates their education in the practical aspects of the type of living suitable for them as children and adults. This experience confirms the advantages of the special school for children with heart disease and suggests the extension of this type of endeavor to other communities where it may be practicable.

1. Davis, J. E.: Am. J. Physiol. **142**: 402 (Oct.) 1944.
1. Kohn, Kate H., and McEldowney, Ruth P.: The Cardiac Child in a Special School, Am. Heart J. **28**: 491 (Oct.) 1944.

PALMAR SWEATING

Anatomically there are more sweat glands per square area in the palm than anywhere else in the body. The amount of perspiration on the palm, according to Kuno,[1] is from five to ten times as great as that of the general body surface. Palmar sweating differs from that of the general body surface because under ordinary conditions it is not influenced by outside temperatures. Mental stimuli may evoke palmar sweating, and the palm is one of the few places where emotional sweating occurs. Silverman and Powell [2] developed a colorimetric test for determining the presence and the amount of palmar sweating. Ordinary mimeograph paper is soaked for three minutes in a 5 per cent solution of tannic acid, dried and cut into the desired dimensions. The part to be tested is thoroughly dried, after which 25 per cent solution of tincture of ferric chloride is evenly applied to the area with a cotton applicator. The area is then dried thoroughly and contact is made immediately thereafter between the chemically treated paper and the part to be tested. Contact is maintained for three minutes. The tannic acid reacts with iron to form a stain on the paper ranging between gray blue and blue black. The size and intensity of the resulting pattern are directly proportional to the amount of sweat secreted. The authors studied the palmar sweating response in 1,100 patients in an army general hospital. A high percentage of these patients showed manifestation of a disturbed autonomic nervous system, one of the striking features of which was palmar sweating. The authors conclude that excessive palmar sweating is a cholinergic phenomenon related particularly to emotional activities. Viewed in this light the determination of the intensity and the amount of palmar sweating acquires a special clinical significance.

1. Kuno, Y.: Physiology of Human Perspiration, London, J. & A. Churchill, 1934.
2. Silverman, Jacob J., and Powell, Vernon E.: Studies on Palmar Sweating, Am. J. M. Sc. **208**: 297 (Sept.) 1944.

MEDICINE AND THE WAR

ARMY

DRIVE TO ENLIST WACS FOR HOSPITALS

General of the Army George C. Marshall, chief of staff, U. S. Army, recently announced a new and vigorous recruiting drive to enlist Wacs for the newly created Women's Army Corps Medical Units for service at the Army's sixty general hospitals in this country. Women qualified for training as medical and surgical technicians, clerical workers and other skilled women are urgently needed to fill these hospital units to aid in the care and rehabilitation of returned soldiers and release able bodied men from technical and administrative duties. More than 8,000 additional Wacs are required for this purpose.

The plan is to assign a company of 100 women to each of the 1,000 bed hospitals and an additional company of the same size for each additional 1,000 beds in the larger hospitals. These companies will be made up of medical and surgical technicians primarily but will include some women of clerical skills and technicians in other fields, such as x-ray, laboratory and dental. Under an accelerated training program prepared by the Surgeon General's Office, qualified women enlisted as medical and surgical technicians will be assigned to a hospital unit as students after six weeks of basic military training and six weeks at an enlisted technicians' school. They will receive one month of applicatory training after assignment to the hospital. On satisfactory completion of this training they will qualify as technicians with appropriate army ratings and will continue on duty at the place of their final training.

One all Wac enlisted technicians' school has been set up at Wake General Hospital, Camp Atterbury, Indiana, and three others, formerly used to train men, have been opened at Beaumont General Hospital, El Paso, Texas, Fitzsimons General Hospital, Denver, and Brooke General Hospital, Fort Sam Houston, Texas.

LIEUTENANT COLONEL DAN B. SEARCY MISSING IN ACTION

Lieut. Col. Dan B. Searcy, formerly of Washington, D. C., has been missing in action since January 1943. He enlisted in the Army Medical Corps in 1938 and was sent to the Philippine area in 1941. He had a miraculous escape from Mindanao after the fall of Bataan and afterward was stationed in Australia and New Guinea. On Jan. 18, 1942 Colonel Searcy left on an inspection trip by plane and failed to return to his base. The weather was bad and the flight was over uncivilized enemy territory, which prevented any possibility of search or investigation of the loss of the ship. Colonel Searcy has been awarded the Legion of Merit Medal for exceptionally meritorious conduct in the Philippines between Dec. 1, 1941 and April 20, 1942. According to the commendation "No hospital facilities whatever existed on Mindanao, and bombing and strafing of the air base installations started right after Pearl Harbor. During this period Colonel Searcy set up and maintained full base medical and hospital facilities in spite of enemy activity. He maintained an ambulance at the airdrome, and on numerous occasions when bombing and strafing killed and injured personnel on the airfield he personally rendered first aid and directed removal of the injured." Dr. Searcy graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1934.

BRIGADIER GENERAL SIMMONS APPOINTED LECTURER

Brig. Gen. James S. Simmons, chief, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, was recently appointed by the regents of the University of Michigan as nonresident lecturer in the School of Public Health for the university year 1944-1945.

46TH GENERAL HOSPITAL CITED

The 46th General Hospital, staffed by Oregon physicians and nurses and known as the University of Oregon Medical School Hospital, was recently awarded the meritorious service unit plaque. The citation mentions the efficient and rapid manner in which the hospital organized for treatment of casualties and for its high quality of professional work. The unit was last reported to have been on a beach head on the Gulf of San Rafael in southern France, and it is believed to be the first hospital unit to receive such honors. Col. J. Guy Strohm, Portland, is commanding officer of the 46th General Hospital and was recently awarded the Bronze Star.

AVIATION MEDICAL EXAMINERS

Graduation exercises for a class of fifty-nine medical officers who successfully completed the Aviation Medical Examiners' Course were held January 5 in Stafford Hall at the Army Air Forces School of Aviation Medicine, Randolph Field, Texas. The graduation address was made by Brig. Gen. Aubrey Hornsby, chief of staff, AAF Central Flying Training Command, Randolph Field, Texas. Presentation of the diplomas was made by Brig. Gen. Eugen G. Reinartz, commandant of the school.

FIVE MORE HOSPITAL SHIPS

The War Department stated that five more troop ships will be converted into United States Army hospital ships in order to insure speedier return of America's combat wounded. This addition will bring the number to twenty-nine such vessels operated by the Transportation Corps, Army Service Forces, and will have a total capacity of more than 18,000 sick and wounded. Conversion of the new ships is expected to be completed so that they will be ready for use in June or July.

24TH ANNUAL REUNION OF BASE HOSPITAL NO. 19

The 24th annual reunion and dinner of U. S. Base Hospital No. 19 Association was held January 27 in the Empire Room of the Powers Hotel, New York. The personnel of this unit was organized, equipped and trained under the command of Col. John M. Swan and was made up of doctors, nurses and men from New York. It functioned overseas as a 4,000 bed hospital in Vichy, France.

LIEUTENANT COLONEL LEON H. WARREN APPOINTED TO NATIONAL RESEARCH COUNCIL

Lieut. Col. Leon H. Warren, formerly of Philadelphia, has been appointed a member of the National Research Council, representing the War Department in the Division of Medical Sciences. Colonel Warren is now assistant director, technical division, Office of the Surgeon General, and liaison officer to the National Inventors Council.

NEW CONVALESCENT HOSPITAL ESTABLISHED

The War Department recently announced the establishment of a new convalescent hospital at Camp Upton, New York. The hospital will be under the command of Col. Edward A. Coates, M. C.

PRISONER OF WAR GENERAL HOSPITAL

The War Department recently announced that the hospital at Camp Forrest, Tennessee, is designated Prisoner of War General Hospital No. 2.

ARMY AWARDS AND COMMENDATIONS

Captain Morton M. Spielman

The Bronze Star Medal was recently awarded to Capt. Morton M. Spielman, formerly of New York. The citation accompanying the award read "for heroic achievement in connection with military operations against an enemy of the United States in ———, France, on Nov. 12, 1944. Shortly before dark a group of vehicles, while crossing a treadway bridge, received a concentration of enemy artillery fire. Five men in the advance vehicle were seriously wounded and were in urgent need of medical aid. When Captain Spielman reached the bridge he found that the artillery fire was still falling in the area and that the vehicles had continued onward in order to get out of the area. Owing to the intense fire he was forced to leave his vehicle and proceed on foot. Accompanied by his driver he walked through one burning town and proceeded to the next, where he quickly set up his emergency aid station and rendered medical aid to the unit. Two of the men required immediate surgical attention and blood plasma. He performed the necessary surgical treatments under the most adverse conditions, and as a result of his efforts the men survived." Dr. Spielman graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1937 and entered the service Aug. 1, 1942.

Major General Morrison C. Stayer

The Distinguished Service Medal was recently awarded to Major Gen. Morrison C. Stayer, formerly of Easton, Pa. The citation read "While serving as chief health officer, the Panama Canal, from September 1939 to February 1944, in the face of unprecedented difficulties, his untiring efforts and wise judgment resulted in the maintenance of exceptionally high standards in the Canal Zone and in the cities of Panama and Colon, and in the provision of adequate hospital facilities and personnel. His genius for organization proved invaluable to the government. The manner in which he met all responsibilities placed on him made possible greatly improved health conditions locally and played a large part in the outstanding results achieved in the field of health and sanitation. By his qualities as an officer, a very difficult situation dealing with standards of sanitation was handled in a superior manner. He rendered invaluable service in the recruiting of laborers from Central and South America for vital defense programs in the Caribbean area." Dr. Stayer graduated from Jefferson Medical College of Philadelphia in 1906 and was commissioned in the regular Army in 1908.

Lieutenant Colonel R. B. Sigafoos

At special ceremonies at the Office of the Surgeon General, the Legion of Merit was awarded to Lieut. Col. R. B. Sigafoos, deputy director of the training division. He was cited for the outstanding work he did in training and equipping the medical units for the entire new Chinese First Army. Almost insurmountable obstacles of supply and personnel problems, particularly language differences, had to be overcome in the performance of this job. Major Gen. Norman T. Kirk, the Surgeon General, made the presentation. Dr. Sigafoos, formerly of Tacoma, Wash., graduated from the University of Nebraska College of Medicine, Omaha, in 1937 and entered the service in August 1939.

Lieutenant Colonel Noah Barysh

The Silver Star was recently awarded to Lieut. Col. Noah Barysh, formerly of New York City, "for gallantry in action in the vicinity of Kej el Guelbi, Tunisia. Although subject to intense artillery fire, Lieutenant Colonel Barysh established a successful chain of medical evacuation units designed to secure maximum efficiency in the care of the wounded. Lieutenant Colonel Barysh repeatedly exposed himself to enemy fire on numerous inspections of aid centers under his command." Dr. Barysh graduated from Rush Medical College, Chicago, in 1933 and entered the service Dec. 21, 1940.

Captain John F. Larsell

The Purple Heart was recently awarded to Capt. John F. Larsell, formerly of Portland, Ore. He was wounded on Sept. 30, 1944 in action in the Nancy-Metz area of France. Dr. Larsell graduated from the University of Oregon Medical School in 1943 and entered the service Dec. 26, 1943.

NAVY

NAVAL AIR PHYSICAL DIRECTOR

Comdr. William R. Kane, U.S.N., was recently appointed head of the Naval Aviation Physical and Military Training Program, succeeding Comdr. Frank H. Wickhorst, U.S.N.R., who has reported for duty at sea. Commander Kane has assumed new duties after many months of combat in the Pacific, where he headed the famous "Grim Reapers" Squadron, which won the Navy Cross for leading a flight group against the Japanese fleet, received two Distinguished Flying Crosses for action at Truk and Palau and a Presidential Unit Citation as a flier on the U. S. S. *Enterprise*.

HOSPITAL CORPS SCHOOL FOR WAVES

The Hospital Corps School for members of the Women's Reserve at the National Naval Medical Center, Bethesda, Md., recently celebrated its first anniversary. Since its inception the school has graduated 5,825 women from a four weeks course which includes classes in first aid, anatomy and physiology, properties of drugs, hygiene and sanitation, nursing, dietetics, weights and measures, medication and sterilization. Under this system the school has been graduating 480 Wave hospital corpsmen each month. In class, junior students are instructed by Wave pharmacist's mates, first class, while senior students receive graduate training from the staff of Navy nurses assigned to the school under the direction of Lieut. Clara Alice Stolp, Nurse Corps, U.S.N.R. The students are sent to the school on completion of recruit training at Hunter College, Bronx, New York, and are under the direct supervision of Comdr. Martin V. Brown, Medical Corps, U.S.N., executive officer in charge of the Hospital Corps School. Graduates of the school are stationed at naval hospitals and in the dispensaries of naval air stations, training centers and all naval establishments within the continental United States where their services are needed. With the passage of the overseas bill for Waves, a number of these hospital corpsmen have recently been assigned posts in Hawaii.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Stephen L. Derkach

Lieut. Stephen L. Derkach, formerly of Glen Rogers, W. Va., was the recent recipient of the Bronze Star. The citation read "for meritorious performance of duty as a company medical officer of the Second Beach Battalion during the assault on France, June 6, 1944. Lieutenant Derkach, under heavy gunfire, repeatedly exposed himself to administer to the wounded and, without regard for his personal safety, supervised the evacuation of wounded from his section of the beach. His courage and devotion to duty were an inspiration to all officers and men having contact with him. The skill and professional ability displayed by Lieutenant Derkach under most trying conditions were in keeping with the best traditions of the United States naval service." Dr. Derkach graduated from Hahnemann Medical College and Hospital of Philadelphia in 1940 and entered the service Dec. 21, 1942.

Lieutenant Ernest V. Reynolds

The Bronze Star was recently awarded to Lieut. Ernest V. Reynolds, formerly of Barre, Vt., "for meritorious performance of duty as senior medical officer of the Second Beach Battalion, United States Navy, during the assault on the coast of France, June 6, 1944 and subsequently. Lieutenant Reynolds organized

the medical section of the beach battalion and exerted the leadership which enabled medical attention to be brought to casualties on the assault beach shortly after H hour, initiated casualties evacuation on D day and continued it thereafter despite the extremely unfavorable type of beach, shortage of supplies and fire and bombing from enemy airplanes and surface batteries. The bravery and professional ability displayed by Lieutenant Reynolds during this period were in keeping with the best traditions of the United States naval service." Dr. Reynolds graduated from Cornell University Medical College, New York, in 1934 and entered the service Nov. 16, 1942.

NEW ADVISORY AND CONSULTANT APPOINTMENT FOR REAR ADMIRAL SMITH

Rear Admiral Harold W. Smith (MC), U.S.N. (Ret.), Head of the Research Division of the Bureau of Medicine and Surgery, has been appointed a member of the Advisory Scientific Board of the Gorgas Memorial.

Admiral Smith also has been appointed a member of the Permanent Board of Honorary Consultants of the Army Medical Library.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

Induction Center, Grand Central Palace, New York: Head Injuries, Dr. Eli Jefferson Browder, February 9 (to be repeated on February 16).

Gardiner General Hospital, Chicago: Brain and Spinal Cord Injuries, Dr. Eric Oldberg and Dr. Adrien H. P. E. Verbrugghen, January 31; Less Familiar Vascular Syndromes, Dr. LeRoy H. Sloan, February 7: Present Status of Medical Planning, Dr. Morris Fishbein, February 21.

Station Hospital, Truax Field, Wisconsin: Allergic States, Dr. Theodore L. Squier, January 31; Effects of Cold and Dampness, Col. Irving S. Wright, February 14; Heart Disease, Dr. Chester M. Kurtz, February 28.

U. S. Naval Hospital, Great Lakes, Ill.: Differential Diagnosis of Some Common Skin Diseases, Dr. Francis Senear, February 6.

Birmingham General Hospital, Van Nuys, Calif.: Some Aspects of Peptic Ulcer, Dr. William Boeck, February 14.

Regional Hospital, Camp Haan, California: Repair of the Facial Nerve, Dr. Pierre Viole, February 6.

Station Hospital, Camp Cooke, California (afternoon session) and Hoff General Hospital, Santa Barbara, Calif. (evening session): Pathogenesis of Rheumatic Fever, Lieut. Comdr. Robert W. Huntington Jr., February 7; Clinical Aspects and Treatment of Rheumatic Fever, Lieut. Comdr. George C. Griffith, February 7.

Torney General Hospital, Palm Springs, Calif.: Peripheral Nerve Surgery, Dr. Rupert Raney, February 6; Intestinal Obstruction Due to Regional Enteritis, Lieut. Col. W. A. Sheehan and Major Ralph Pomeranz, February 6.

U. S. Naval Hospital, Corona, Calif.: Anesthesia, Major E. H. Warnock and Lieut. J. E. Skewis, February 8.

AAF Regional Hospital, Santa Ana Air Base, Santa Ana, Calif.: Thoracic Surgery, Lieut. Comdr. J. E. Dailey and Dr. John Jones, February 6.

Station Hospital, Fort Sheridan, Ill.: Plexus and Peripheral Nerve Injuries, Dr. Paul C. Bucy, January 31.

Vaughan General Hospital, Hines, Ill.: Endocrinology, Dr. Willard O. Thompson, January 31.

Mayo General Hospital, Galesburg, Ill.: Burns and Plastic Surgery, Col. William B. Parsons and Dr. Christopher Dix, January 31.

Station Hospital, Camp Ellis, Lewistown, Ill.: Psychosomatic Medicine, Dr. Sidney A. Portis, January 31.

Regional Hospital, Chanute Field, Rantoul, Ill.: Arterial Vascular Disease—Traumatic Lesions, Dr. Theodore R. Van Dellen and Major Harris Shumacker, January 31.

Wakeman General Hospital, Camp Atterbury, Indiana: High Blood Pressure, Dr. Kenneth G. Kohlstaedt and Dr. Robert L. Glass, January 31.

Billings General Hospital, Fort Benjamin Harrison, Indiana: Diseases of the Kidneys—Urogenital Tract, Dr. James O. Ritchey and Dr. Henry O. Mertz, January 31.

A. A. F. Regional Hospital, Santa Ana, Calif.: Thoracic Surgery, Dr. John Jones and Lieut. Comdr. J. E. Dailey, February 6.

U. S. Naval Hospital, Oceanside, Calif.: Allergies of Southern California, Dr. Robert W. Lamson, February 8.

U. S. Naval Air Station, North Island, San Diego, Calif.: Blood Plasma and Blood Substitutes, Lieut. Col. R. M. Jones, February 9.

Mary Lanning Hospital, Hastings, Nebr.: New Drugs in 1943 and 1944, Dr. Lynn T. Hall; Nontuberculous Diseases of the Chest, Dr. Francis L. Simonds; Routine Use of Protein Digest Intravenously Following Major Surgical Procedures, Dr. Herbert H. Davis, February 7.

Air Base Hospital, Patterson Field, Dayton, Ohio: Diagnosis and Medical Management of Cholecystitis, Dr. C. J. De Lor; Surgical Treatment of Acute Cholecystitis, Dr. John W. Means, February 21.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, January 20, page 164)

CONNECTICUT

Waterbury Hospital, Waterbury. Capacity, 372; admissions, 8,402. Miss Aida E. Creer, R.N., Superintendent (5 interns, July 1).

ILLINOIS

Loretto Hospital, Chicago. Capacity, 159; admissions, 4,221. Sister M. Stephanie, R.N., Superintendent (interns).

Swedish Covenant Hospital, Chicago. Capactiy, 258; admissions, 6,365. Mr Arthur A. R. Nelson, Superintendent (interns, July 1).

LOUISIANA

North Louisiana Sanitarium, Shreveport. Capacity, 121; admissions, 3,856. Dr. A. A. Herold, President (intern).

MISSOURI

Menorah Hospital, Kansas City. Capacity, 145; admissions, 3,707. Dr. E. Kirsch, Administrator (interns).

NEBRASKA

Lincoln General Hospital, Lincoln. Capacity, 213; admissions, 4,502. Mr. Robert B. Witham, Administrator (3 interns).

NEW JERSEY

Elizabeth General Hospital, Elizabeth. Capacity, 250; admissions, 4,574. Mr. W. Malcolm McCloud, Superintendent (interns).

Muhlenberg Hospital, Plainfield. Capacity, 330; admissions, 6,319. Mr. John R. Howard, Superintendent (interns, July 1).

NEW YORK

St. Francis Hospital, New York. Capacity, 441; admissions, 6,788. Dr. John Dorning, Medical Director (interns).

OREGON

St. Vincent's Hospital, Portland. Capacity, 425; admissions, 10,739. Sister Rose Imelda, R.N., Superintendent (residents and interns).

WASHINGTON

Northern Permanente Foundation Hospital, Vancouver. Capacity, 365; admissions, 11,122. Dr. J. W. Neighbor, Medical Director (interns, July 1).

WISCONSIN

St. Francis Hospital, La Crosse. Capacity, 315; admissions, 7,357. Sister M. Fridoline, R.N., Administrator (Intern, October).

St. Mary's Hospital, Madison. Capacity, 203; admissions, 7,750. Sister M. Bernadette, R.N., Superintendent (intern, July 1, September 1).

State of Wisconsin General Hospital, Madison. Capacity, 772; admissions, 12,682. Dr. H. M. Coon, Superintendent (resident—medicine).

Evangelical Deaconess Hospital, Milwaukee. Capacity, 170; admissions, 5,465. J. P. Meyer, D.D., Superintendent (intern, October).

Mount Sinai Hospital, Milwaukee. Capacity, 198; admissions, 8,523. Dr. M. Rosenzweig, Superintendent (intern, July 1).

ORGANIZATION SECTION

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

SATURDAY MORNING SESSION, NOVEMBER 18

DR. D. L. CANNON, Montgomery, Ala., Presiding

(Continued from page 169)

Medical Attitudes, Opportunities and Responsibilities in a National Fitness Program

DR. J. W. WILCE, Columbus, Ohio: We have in America today a challenging movement to improve the health and fitness of our people. This new program is full of vital potentialities, and progress has already been made. The medical profession you represent is deeply concerned. In this war, as in World War I, the high percentage of rejections for service startled America. Following World War I new laws were passed in thirty-six states which required physical education and health education in the public schools. The requirements ranged from forty minutes to three hundred minutes a week. We required one hundred minutes a week in Ohio, and even this law was recently repealed. In spite of these new exercise, recreation and health education laws and various national health conferences, improved public health administration, vastly increased sports facilities and programs in the interim, the percentage of draft rejections in this war is as great as in the first, if not greater. Even relatively scientific analysis of reasons for this seeming condition cannot be made except by those who have the detailed findings and adequate case histories of rejectees and medically discharged veterans. I hope that an analysis of records may be made by some proper agency at a proper time, in the interest of future human improvement.

The appointment of the Committee on Physical Fitness in the Administrative Office of the Federal Security Agency was made in April 1943. John B. Kelly, Olympic single sculls champion, is chairman of this committee by presidential appointment. A joint committee on physical fitness equally representative of the Council on Physical Fitness and the American Medical Association was established. The platform adopted by the Joint Committee on Physical Fitness has as its objective to (1) help each American to learn physical fitness needs, (2) protect against preventable defects, (3) attend to correctable defects, (4) know how to live healthfully, (5) act to require physical fitness, (6) set American standards of physical fitness at a high level and (7) provide adequate means for physical development. At the beginning of his military training the merely healthy boy is dead tired in the evening and falls asleep as soon as he finds a chance. After some months, however, he does the same and far more strenuous work with hardly any effort and takes leave for the evening. All the men gain an increase of strength and reserve strength, which is a physiologic reality and can be expressed in work hours. This conditioning to dynamic strength has been greatly neglected in peacetime; hence a large percentage of our selectees, even those who were healthy from the medical point of view, that is, had no specific defects or illnesses, were conspicuously weak and needed a long period of training and conditioning. It should be remembered, however, that the achievement and maintenance of basic clinical health is a prerequisite for the achievement of physical fitness. "The task of medicine will center around the recognition, prevention and correction of defects, deficiencies, disabilities, disorders and diseases." The fitness movement this time started out in approximately the same way as that of 1919, except that it was aimed nationally.

The joint committee includes the chairman Colonel Rowntree, medical head of Selective Service. There are seven physicians: both presidents of the American Medical Association, Dr. Fishbein, Dr. Sensenich, Dr. Buie, Dr. Stroud and General Lull, also Dr. Wells and the president of the American Dental Association. On the other side of the fence we have the group that is theoretically directly concerned with physical fitness: the chief of the United States Office of Education, or his representative, Dr. Lloyd, and Dr. William P. Jacobs, president of Presbyterian College, Clinton, S. C. Incidentally, this fine type man is now privately publishing a very personable, attractive new magazine in the interest of the fitness movement. The magazine is called *Aim*. Also Dr. Hiram A. Jones, Ph.D. director of physical fitness for New York State; Mr. A. H. Pritzlaff, president of the American Association for Health, Physical Education and Recreation; Mr. Arch Ward of the Chicago *Tribune*, who has promoted the annual all star football game, and Watson B. Miller of the Federal Security Agency in Washington or his representative. Dr. Frank S. Lloyd, a Ph.D., has served as executive secretary. The assistant to the chairman is Dr. Franz Schuck. This joint committee has held monthly meetings since June. It set up a series of programing committees with co-chairmen, one a layman and one a physician. The committees are on institutional planning, management, labor, promotion, schools and colleges, associated industry, state and local, and medical affiliates.

As many of the members of these committees as could be brought together were gathered in a tremendously significant meeting and submitted tentative programs in Washington, July 28 and 29, 1944. Over a hundred people in these various fields attended this meeting. Since that time the joint committee has given most of its attention to the consideration of suggested programs. The practical picture at the moment is that schools and colleges submitted a valuable proposed plan, outlining much that is already being done in school health and suggesting various advances of educational and medical nature for future development. The Associated Industry, of which committee I have served as medical co-chairman, along with Mr. L. B. Icely, president of Wilson Sporting Goods Company, as chairman, has led the field in a recommended practical program. The government at the present writing has said in effect that it will not subsidize the movement further. The Federal Security Agency paid the traveling expenses of the more than 100 consultants to the big July Washington meeting. The American Medical Association has paid the expenses of its own representatives. I might say that the Ohio State Medical Society entered into that process also. The Associated Industry offers to raise money and to set up a corporation, not for profit, an executive secretary and a board of ten to conduct and promote the future activities.

What has all of this to do with medicine? The Medical Affiliates Committee, which includes state and local medical organizations, has never had an opportunity to meet in its completeness and strength. Dr. West and Dr. Van Etten have been the medical chairmen of this group. In a sense this meeting is the first in which the program is being presented to enough medical representatives on the state level to make it of significance. Practical suggestions to state associations as to the nature and degree of their cooperation in the joint movement have been delayed for many reasons. Medicine has been notoriously conservative in its approach to this movement and understandingly so. The present situation poses a challenge to the medical profession to get into this movement on high ground, but also bluntly stated and possibly off the record, on the same basis of enlightened self interest that has prompted the Committee of the Associated Industries.

The experience of the preflight naval physical training schools is significant. They started out with five hours a day physical training. They were going to make supermen for aviation. Most of them are now having three hours a day physical train-

ing and sport and, the significant thing, including one hour of the Jacobson relaxation system. In other words, we did not know how far exercise could go to improve the physical fitness of the individual without defeating its own purpose. Two classes at one preflight school scored less in the final pack function test than they did on their entrance to the program.

The stamp of approval of the American Medical Association is an asset of untold worth. I cannot tell this group that. The medical profession should guard it jealously in this movement and in my opinion should withhold it until national, state and local organization is satisfactory to medicine. Proper state and local organization is prerequisite to the success of this movement, because that is where the results are going to be obtained and that is where the decisions are going to be made and the work is going to be done.

The general principles of the splendid statement published by the Council on Industrial Health in THE JOURNAL, Nov. 11, 1944, on general medical coverage for industrial employees are directly related to this particular discussion. In providing for this health negotiation and arrangement with industry is included the statement that plans of this nature should include provisions for health maintenance programs, that the physician should be responsible directly to top management and that activities relating to health should be centered in and directed through the medical department. Because of the essential medical nature of such plans, their policies should be directed and their medical phases should be controlled by the medical departments of industry. Much the same principles are appropriate to total community fitness programs, which of necessity include industry as the most immediately important field in the winning of the war from the home standpoint. I believe that Dr. West hopes that this meeting may serve as a start toward a clearance of some ideas on local procedure. The medical plans under which these tremendously increased medical and surgical services are effected will vary, of course. The present organization in some states is beneath the dignity of the medical profession and cannot succeed fully unless it is changed. I have been serving as a representative of the Ohio Medical Society, as a member of the State Advisory Committee, which first was called appropriately "The State Advisory Committee on Health, Recreation and Physical Education." With the same organization it has lately been called "State Advisory Committee on Recreation and Physical Fitness." The organization of the Joint Committee on Physical Fitness is a great victory for medicine, if we can make the principles stick on the state and local level. Our own state advisory committee adopted the principle that this joint committee has adopted. It called in industry last summer and got money from the Kellogg Foundation. The tuberculosis association of the state wangled that out of the Kellogg Foundation in good shape, and a physical educator was sent into the state as the guide of a school and community health program, subsidized by the Kellogg Foundation, the theory of the present situation in the joint committee. Medicine in a sense has to compete with education in the guidance of community health. This physical educator, a young woman, called in thirty-six teachers from high schools in the state. At a two week seminar she placed before them a great many authorities in many public health fields, and then she sent them home to organize senior classes in public health and community and school health programs with the general implication that the school superintendent was to promote and organize community health. I asked the girl about the make up of the committees organized by the superintendents to promote school health and out of the school to expand into a sort of adult education and these are the advisory committees that they set up. In the very small town of Mason they set up as the committee the PTA, American Legion, Eastern Star and Rebeccas, two elementary teachers, two high school teachers, the Red Cross and one local M.D. In a large city, Toledo, the Tuberculosis Association, the Chamber of Commerce, Health and Physical Education, Family Life Association, Social Hygiene Association, one parent of PTA, Toledo *Blade* representative and a school nurse. There is no mention of a physician among that community health promotion group. There may be one, but she did not mention him. Then in another small community which poses as the grass roots picture, here is the community health committee set up in this particular small town through the superintendent of schools: the mayor, the president of the board of education, the superintendent, a minister, Kiwanis, a dentist, a chiropractor who is half time school physician, a science teacher, a Negro mother active in church, a publicity man and a mother with four children in school. Well, that is the slant local organization is taking in the absence of constructive health leadership from the standpoint of medicine. To me it poses the question as to whether a little more leadership should not be given through regular medical channels on the state and local level.

The basic responsibility of medicine is to participate to the limit of its vast influence through its every channel and medium in the fundamentally sound aspect of the program on all levels. The majority of interested people look for, expect and rely on such participation. Medicine should determine scientifically as far as possible the proper standards of medical and physical fitness and furnish such information to agencies and organizations which can and will use it constructively and conscientiously in the promotion of the movement. Medicine should attempt realistically to change the national, state and local organization to achieve a national, state and local organization of the type deemed best from the medical standpoint for the continued achievement of medical and physical fitness ends. Medicine should face the facts and attempt to educate those of our own membership who need it to the facts, appreciation of values and attitudes inherently necessary to the success of the movement. Medicine should consider seriously and promote the subsidization from medical funds of medical fitness offices, libraries and personnel for medical coordination, education and sound ethical promotional leadership of the profession and the public on national, state and possibly on local levels, as has been done in a limited way by organized medicine with health education. Another responsibility of medicine, of course, is to encourage research in the medical fitness and overlapping physical fitness fields and to exercise alertness and courage in the medical guidance and control of the inevitable attempts at overpromotion of the movement in some special interest.

DISCUSSION

DR. MORRIS FISHBEIN, Chicago: The hearings held before the Pepper committee having to do with the present state of health of American youth as determined by the examinations of the induction boards and Selective Service boards are likely to be a political football in the next few months in the Congress of the United States and in various public hearings. Those who would like to show that medicine has failed in its task of keeping the American people healthy and fit are emphasizing the tremendous number of rejections for various causes and cite these as a failure of the medical profession. Those who are on the defensive, which means the medical profession, are therefore compelled to point out that many of the rejections were for conditions which are neither preventable nor correctable. As Dr. Sensenich pointed out in his appearance before the Pepper committee and has emphasized in his article which appears in *Hygeia,* many of these defects, as, for example, illiteracy, are not in any way at the door of the medical profession. Some of these defects stem from conditions which are wholly economic.

If this state of health of American youth is to be related to the political situations, it is important for the medical profession to be able to say, as Dr. Roger Lee and Dr. Harvey Stone both said in their appearance before the Pepper committee, that the medical profession is assuming the leadership in raising the people of the United States to a high degree of health and physical fitness. We are in an exceedingly fine strategic position at the present time. The National Committee on Physical Fitness has now been changed to a Joint Committee on Physical Fitness, with representation from medicine. In all of the sessions that have thus far been held the medical point of view has prevailed. At present the governors of forty-two states have assured the organization that they propose to set up this movement on the state level. The governors were asked in the individual states to set up state committees, and an outline for a state committee has been sent to each of the governors who has responded favorably. It is proposed that in the setting up of the state committee to

guide this movement there be adequate representation of medicine from the state medical society and that the state medical society be asked to designate to the governor its representation on the state committee. There has also been set up the possibility of county or municipal organization for the same purpose; again the local medical society will be asked to exercise the medical guidance.

The promotion of the movement, as Dr. Wilce pointed out, is going to require a large financial subsidy. An arrangement is now in process of being developed and will probably be consummated within the next two weeks whereby all of the industries concerned at all in the health field—the food industry, the athletics industry, the builders of gymnasium and physical equipment of all kinds, will establish the necessary funds. Any literature sent out in relation to this work will be controlled by a small committee which will be predominantly medical. The idea of a one year emphasis has been abandoned. The first to suggest that was Dr. West, and I think wisely. As present the great numbers of physicians who are away from the country make it practically impossible to put into effect for the nation as a whole a complete physical fitness program such as is contemplated.

In analyzing the results of the induction boards, it becomes clear that we are not as a nation a degenerate and weak and flabby nation. A degenerate, weak and flabby nation could not have produced an army and navy of ten million men, such as we now have, and carry on the kind of battles that they are now carrying on. It is quite clear, however, that frequently in the schools, in the high schools and colleges, we produce young men and women who are physically fit, and that at the moment when the child leaves school, if it leaves grade school to go into industry, if it leaves high school to go into industry or if it leaves college or a university to go into industry or other work, degeneration from the physical point of view begins to set in. The School Health Association of the United States has emphasized that point. This means, therefore, that we need a nationwide physical fitness movement which will reach the worker in industry regardless of the age level. This movement is now being set up with the idea of reaching that group particularly. Practically all of the great insurance companies of the country are coming into the picture. They realize that they have a special interest in prolonging life and in maintaining health on a high level. In order to carry this movement on there must be an integration of all of the groups concerned. While it is true that medicine must assume the leadership, I think it is equally obvious that medicine represents numerically the smallest group in the picture. When the associates were called into the meeting in Washington there were over one hundred national organizations which take it as a part of their work to carry on a physical fitness movement—the Y. M. C. A., the Y. W. C. A., the 4-H Clubs, the Association for Recreation in Industry and similar groups. They are all willing to accept medical leadership provided medicine assumes leadership.

From the point of view of medicine's self interest, already mentioned by Dr. Wilce, I doubt that there is anything more important to the advancement of medicine than the idea that, with the cooperation of state authorities and school authorities, physical examinations will be provided for boys and girls of all age levels. From a public relations point of view there is one of the most important opportunities for the medical profession in overcoming a good deal of public antipathy to some of the things that they think medicine stands for and getting the parents of the child closely in contact with the medical profession. The organization of medicine for this purpose, the committee has agreed, shall be on the basis of the organization of the American Medical Association and its constituent and component societies. The county medical society and the state medical association will have to carry out many phases of this work. With the lack of available personnel in the medical profession at this time, it would be ideal if every association having a competent woman's auxiliary would enlist the interest of the woman's auxiliary in this project. Thus at least some one familiar with or sympathetic to medicine's programs could be present at every one of the various types of meetings that are going to be carried on in associated groups when this movement gets under way. In order to put this on a sound medical basis the aid of the National Research Council, Division of Medical Sciences, has been enlisted. There is to be a meeting of representatives of the medical profession, including particularly men expert in the field of cardiology and in the field of nerve and muscle physiology, including representative physical educators, to establish standards of physical fitness at various age levels. The public looks to the medical profession for advice and leadership in this field. Such advice and leadership cannot be given until the leaders of the medical profession—that means particularly in this instance the leaders on a state and county level—inform themselves fully about what is going on and thus are able to advise the lay groups who are going to look to you for leadership in this movement.

DR. H. H. SHOULDERS, Nashville, Tenn.: This movement offers an opportunity for medicine to place some emphasis where it belongs. The absence of physical fitness in young men is not entirely the fault of the medical profession. The parents of these youngsters, the educators and many other people are responsible for that rather than the medical profession. I think the public is too quick to emphasize the matter of a physical examination or even a tonsillectomy in the matter of establishing physical fitness. The matter of physical fitness is much broader than purely medical care. Parents are to blame. It is the heredity of the individual, the early training of the individual, the diet of the individual, the home—a thousand things contribute to physical fitness or the lack of it. I should regret it very much if we should ever permit this to become a purely medical movement. At the same time medicine must be in the picture in an advisory capacity and to a prominent extent. These promotions of athletics have never made athletics usable in the production of physical fitness of all the people. They have merely made it a propaganda outfit for the schools. That may be an exaggerated statement, but to a large extent it is true.

DR. OLIN WEST, Chicago: I had this subject placed on the program with malice aforethought. The physical fitness movement is being organized on a national basis. I believe that the movement is a most important one and that it should have been started seventy-five years ago instead of at this late date. I have been made the chairman of a group, a programing group designated the Medical Affiliates. The question has arisen as to just how that group shall be composed in its final organization. May I interject the thought that we want to keep medicine in the forefront in this movement not only in a purely advisory capacity but in an authoritative advisory capacity. I do not believe that the movement can ever succeed unless it is largely directed by medicine, and I am sure that it can never succeed unless the medical profession on the state and local level will get wholeheartedly into the movement. My purpose in putting this subject on the program was that you, as secretaries and editors of the constituent state medical associations, might know about it and that I might have an opportunity along with the members of the Joint Committee on Physical Fitness, of which Dr. Sensenich and Dr. Fishbein, who are present, are members, to appeal to you to give all possible aid on the part of state and county medical societies in the promotion and in the operation of this movement. It ought not to be organized on the basis of what exists in the large cities or in the large communities. It ought to be organized with a view to carrying this movement into the isolated communities and even into the strictly rural areas. It is my hope that our state medical associations and our county medical societies will develop programs and will wholeheartedly cooperate with those of us in the American Medical Association, including the Board of Trustees and our entire administrative personnel in putting this movement across.

DR. LON W. MORREY, Chicago: I came here to listen because I was sure that I would gather many thoughts from your deliberations that I could carry back to the American Dental Association that would help us in organizing our program on the state and local levels. The American Dental Association has been in a rather peculiar spot as far as this physical fitness program is concerned. From its inception, at least from the inception of the joint committee, our immediate past president, Dr. Raymond Wells, was a member of the joint committee but

the American Dental Association officially had not endorsed the program. However, I am happy to inform you that at our meeting last month the House of Delegates of the American Dental Association officially endorsed the program and agreed to cooperate to the fullest extent. We have had a little experience in this physical fitness program over the past two years, however. About two years ago we joined a cooperative movement with Mr. Studebaker of the United States Office of Education in the promotion of his High School Victory Corps Physical Fitness Program. Through the Council on General Health of the American Dental Association we asked our state dental societies and our component dental societies to cooperate with the state superintendent of instruction and the state board of health in the establishing of a Victory Corps Dental Program. It has been brought out here by both Dr. Wilce and Dr. Fishbein how difficult it is going to be to put this program over on the state and local levels. I can assure you from the experience that we have had over the past two years with this high school program that it is a difficult job to put it over. Forty-two states have established committees to cooperate with their state educational and health officials, but of those forty-two states only a few actually put over a statewide program. True in most of the states some of the local communities did a fairly good job in going into the high schools and in having the mouths of the high school students examined and then in following through to have the defects corrected, but the success of the program was very spotty. Dr. Fishbein pointed out, or at least I understood him to say, that in all probability this physical fitness program should be directed at the industry groups. I presume that it may work out that way but I do want to leave this thought with you. As far as the dental program is concerned, we would much prefer to direct our efforts at the school age child. You know just as well as I do that if we are going to control this dental decay situation and if we are going to develop better teeth the best way to do it is to concentrate our efforts on the younger age group to prevent the teeth from becoming decayed, so that we can prevent the installation of bridges and partial dentures. I am sure that I am speaking for the entire American Dental Association when I say that we would like to concentrate our efforts on the lower age group and that we would like to solicit your cooperation in setting up your state programs.

DR. JULIAN P. PRICE, Florence, S. C.: I have been wondering what the state secretaries and editors could actually do. One point that has been brought out which I think every one will recognize, particularly any of us who are pediatricians, as I am, is the apathy on the part of the average practitioner toward the care or the examination of any one who is not actually sick. The average physician does not worry about the child, or even the adult, who comes in without a fever or without a pain. Yet no program of this type can get across in the smaller communities, in the rural communities, unless our general practitioners become interested in the prevention of disease and in the maintenance of good health. The year before the war in my community they put on the type of examination which Dr. Fishbein mentioned at various levels for all the children. It was one plan about which the phyicians should have been enthusiastic, and yet only one physician in the community took any interest whatever in it. It seems to me that one of our problems is to educate through the state journals and otherwise the physicians toward a new concept of what health is. We cannot do it suddenly, but we can do it gradually through our editorial columns and otherwise. The Rowntree report, as Dr. Fishbein brought out, is going to be a political football. A great many of the defects which threw these men out of the Army could have been remedied if these boys had gone to their family physicians for examinations. The family physicians did not want to examine them. We have to change that attitude on the part of the family physicians. We must make them realize that either we are going to take the leadership in keeping the nation fit or somebody else is going to do it. In the larger communities where there are school physicians who are employed, they can do the examinations; but in the smaller communities, in the rural communities, it is going to be the family physician who has to do it. I am not so old that I cannot remember the time when the average family physician did not want to bother with giving shots to prevent diseases in children. I think the pediatricians have blazed the way. Whether the general physicians wanted to do it or not, they have had to do it in self defense or lose their patients, and now it has become routine. My plea would be that every editor here of a state journal make it his resolve for the next year or two or three years to carry on a slow but gradual process of education through his state journal, aimed at the family physician and his responsibility in the whole picture.

DR. WEST: Dr. Price, don't you think it is possible that the institution and promotion of this movement, with the cooperation of the officials of the state and perhaps county medical societies, might offer the best opportunity for getting those ideas into the heads of these doctors that you are talking about?

DR. PRICE: I have always realized that doctors are stubborn individuals. They are not going to take advice from the outside. If it comes through the state association and not from somebody else, they will take it.

DR. R. L. SENSENICH, South Bend, Ind: I want to point out that one feature of this work has not been specifically mentioned; that is, in connection with the improved methods of teaching health in the public schools. The limited amount of health information that is taught to the youngsters in many instances is so presented that it is the least interesting. It is given a place by the authorities rather hesitantly. In many instances we find that superintendents of schools are really pushing all health matters off to the side; if they have a program in which the individual children are given a certain number of squats and arm exercises and a little swimming at regular intervals, that seems to constitute their interest in health. In many states now steps are being taken to cover the whole field, which includes improved methods of teaching and improved methods of presentation as well as the requirement of these exercises that have been set up. Secondly, this is not purely a victory program. It is a matter of trying to instil into the youngster as well as the employee in industry the importance of health as an objective in itself, so that they will be willing to accept those things that are necessary for the maintenance of health in industry and so that the individual coming out of school will not begin this rapid deterioration at the end of his school period. We have been told, where inventories have been made, as Dr. Fishbein pointed out, that children coming out at the high school level can just take the routine Army induction examinations almost 1, 2, 3, except for those conditions which are largely congenital or where requirements are set up in the way of visual standards, and so on, that they cannot meet.

In the main their physical fitness is pretty good, but they begin to deteriorate from that point on because health in itself is not considered an objective. They are unwilling to accept the self disciplines necessary for the maintenance of health, and the same is true in nutrition. Much is said constantly about the medical profession taking the leadership. It depends on what you mean by leadership. Many times that means setting up a pattern or saying what shall be done. In this instance we have the backing of an influential group that will supply funds. We have the opportunity here of a favorable relationship with government and with education. Here then is an opportunity for the medical profession to exercise that leadership. In essence it means that every one of you down in your state and county societies must also be leaders. You must lead in your own communities.

DR. J. W. WILCE, Columbus, Ohio: Dr. Fishbein said that they are sending an outline of state organization to the states. In the last meeting of our state organization I outlined for the ladies and gentlemen the national organization as it is, and I said that in my opinion this was going to add great vitality to the movement. Imagine my delight and surprise to have the physical education chairman come back and say "We had a letter from the joint committee, from Colonel Rowntree, asking us to do these things, and I have written him saying that we are getting along very nicely." The point about the pediatricians was swell. If they would take more interest in scarlet fever and measles we would have fewer ruptured ear drums to take these 218 pound all American ends out of the Army.

(To be continued)

THE HILL-BURTON HOSPITAL CONSTRUCTION BILL

An Analysis Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association

During the course of the hearings conducted by the Pepper Subcommittee on Wartime Health and Education of the Senate Committee on Education and Labor, the Surgeon General of the United States Public Health Service on July 12, 1944 outlined a broad program for federal participation in the construction of hospitals and related facilities. Subsequently a draft of a bill was prepared and recommended for discussion by the Council on Government Relations of the American Hospital Association to the joint committee of the three national hospital associations: the American, the American Protestant and the Catholic Hospital Associations. The draft was discussed at a meeting of the joint committee held in Washington, Nov. 4, 1944. Representatives of the American Medical Association, by invitation, participated in the discussion.

A number of changes in the draft were suggested and some of these were embodied in a revision of the draft which was introduced in the Senate, Jan. 10, 1945, by Senator Hill of Alabama, for himself and Senator Burton of Ohio, as S. 191. The bill was referred to the Senate Committee on Education and Labor, of which Senator Murray of Montana is the new chairman. It is assumed that this bill will be considered by the recently announced standing subcommittee of nine of the Senate Committee on Education and Labor, which has been created to consider proposed legislation on health. Senator Claude Pepper, Florida, will head the new subcommittee. Other members are Senator James M. Tunnell, Delaware; Senator Elbert D. Thomas, Utah; Senator Robert M. LaFollette, Wisconsin; Senator Kenneth S. Wherry, Nebraska; Senator Lister Hill, Alabama; Senator James E. Murray, Montana; Senator Robert A. Taft, Ohio, and Senator George D. Aiken, Vermont.

PURPOSES OF S. 191

The declared purposes of the pending bill are twofold: (1) to assist the several states to inventory their existing hospitals, as that term is defined in the bill, to survey the need for new construction and to develop programs for construction of such public and other nonprofit hospitals as will, in conjunction with existing facilities, afford the necessary physical facilities for furnishing adequate hospital, clinic and similar services to all people; and (2) to construct public and other nonprofit hospitals in accordance with such programs.

DEFINITION OF TERM "HOSPITALS"

The term "hospital" is broadly defined to include "public health centers and general, tuberculosis, mental, chronic disease and other types of hospitals and related facilities, such as laboratories, outpatient departments, nurses' home and training facilities, and central service facilities operated in connection with hospitals." The definition, however, excludes any hospital furnishing primarily domiciliary care.

CREATION OF FEDERAL ADVISORY COUNCIL

To assist in administering the provisions of the bill on a federal level, a Federal Advisory Council is proposed. The Surgeon General of the Public Health Service will serve as chairman ex officio of the council, and the other eight members will be appointed by the administrator of the Federal Security Agency. The appointed members will be persons "who are outstanding in fields pertaining to hospital and health activities, and a majority of them shall be authorities in matters relating to the operation of hospitals." Their terms of office will be staggered. They will be compensated at a rate fixed by the administrator of the Federal Security Agency but not to exceed $25 a day while serving on business of the Council and will be entitled to receive an allowance to cover expenses while serving away from their places of residence. The Council must meet at least once a year but may meet more frequently if the Surgeon General deems it necessary. On the request of three or more members, it is made mandatory that the Surgeon General call a meeting.

STATE ADVISORY COUNCILS

Applications that will be submitted to the Surgeon General for approval, proposing surveys of existing facilities and the development of programs for construction, must provide for the designation of state advisory councils to include representatives of "nongovernment organizations or groups, and of state agencies, concerned with the operation, construction or utilization of hospitals, to consult with the state agency in carrying out such purposes."

FEDERAL APPROPRIATIONS

For the fiscal year ending June 30, 1946, total appropriations of $110,000,000 are proposed. Of this amount $5,000,000 will be allotted to the several states for surveys and planning, $5,000,000 to cover administrative expenses in carrying out plans that have been approved, and $100,000,000 for the construction of hospitals and related facilities. Thereafter such sums for construction and administrative purposes will be authorized for each fiscal year as Congress may determine to be necessary.

ALLOTMENTS TO STATES

The sum to be made available for surveys and the development of programs will be allotted by the Surgeon General to the several states on the basis of their respective populations, financial needs and such other factors as he finds relevant. In connection with these allotments no specific provision appears in the bill for advice from the Federal Advisory Council. From these allotments each state will be entitled to receive, after an application has been approved, an amount equal to the "federal percentage," which will be determined in accordance with regulations made by the Surgeon General. "Such percentage shall be not less than 25 per centum or more than 75 per centum [presumably of the estimated cost of the survey and the development of the program] for any state, and within that range such percentage shall be determined for the several states on the basis of their relative financial needs."

The sum to be made available for construction and for administrative expenses will be allotted on the basis of the population and financial needs of the respective states and, in the case of allotments for construction of hospitals, the relative need for such construction, or, in the case of allotments for administrative expenses, on the basis of special administrative problems. The Surgeon General will be authorized to promulgate regulations under which these grants are to be made, but only on the recommendation of the Federal Advisory Council and after consultation with the state agencies designated in the several state plans. Grants to a particular state may be terminated whenever the Surgeon General finds, after affording reasonable notice and opportunity for a hearing, that there has been a failure substantially to comply either with any provision required to be included in the application for funds for surveys and the development of programs or in any construction plan, or with any regulation promulgated by the Surgeon General.

APPROVAL OF STATE APPLICATIONS AND PLANS

In order to obtain any of the federal money made available for surveys and for the development of construction programs, a state must make an application therefor to the Surgeon General. The application must (1) designate a single state agency as the sole agency to supervise the survey and to develop the program; (2) provide for the designation of a state advisory council to include representatives of nongovernmental organizations or groups and of state agencies concerned with the operation, construction or utilization of hospitals; (3) provide for compliance with standards prescribed by the Surgeon General with the approval of the Federal Advisory Council, and (4) provide that the state agency will make such reports, in such form and containing such information as the Surgeon General may from time to time require and comply with such provisions as he may from time to time find necessary to assure the correctness and verification of such reports. If an application complies with the foregoing requirements, the bill requires the Surgeon General to approve it.

Before a state may participate in any benefit from the distribution of federal money made available for construction programs and for administrative expenses, it must submit a state plan to the Surgeon General for approval. A state plan, to be

approved, must (1) designate a single state agency as the sole agency for the administration of the plan, or designate such agency as the sole agency for supervising the administration of the plan; (2) contain satisfactory evidence that the state agency designated will have authority to carry out such plan; (3) set forth a hospital construction program which the Surgeon General, on recommendation of the Federal Advisory Council, finds to be in accordance with standards prescribed by him with the approval of the Council, and to be sufficient, in conjunction with existing facilities, to provide the necessary physical facilities for furnishing adequate hospital, clinic and similar services to all the people of the state, and which, in the case of a state which has developed a construction program after making the required surveys, conforms to the program so developed; (4) set forth the relative need, determined in accordance with standards prescribed by the Surgeon General with the approval of the Federal Advisory Council, for the several projects included in the program, and provide for construction, so far as financial resources available therefor and for maintenance and operation make possible, in the order of such relative need; (5) provide such method of administration as the Surgeon General finds necessary for the proper and efficient operation of the plan, including provision for affording to an applicant for a construction project an opportunity for hearing before the state agency; (6) provide that the state agency will make such reports, in such form and containing such information, as the Surgeon General may from time to time require, and comply with such provisions as the Surgeon General may from time to time find necessary to assure the correctness and verification of reports, and (7) provide that the state agency will from time to time review its hospital construction program and submit to the Surgeon General and to the Federal Advisory Council any necessary modifications. If a state plan meets these requirements, it must be approved by the Surgeon General.

APPROVAL OF PROJECTS AND PAYMENTS FOR CONSTRUCTION

For each construction project contained in a state plan there must be submitted to the Surgeon General an application by a state or political subdivision or by a public or other nonprofit agency. Each application must set forth a description of the site for such project, detailed plans and specifications, reasonable assurance that the title to the site is or will be vested solely in the applicant and reasonable assurance that adequate financial support will be available for the construction of the project and for its maintenance and operation when completed. No application for a project may be approved by the Surgeon General unless its approval has been recommended by the state agency. The bill does not specifically require the Surgeon General to seek the advice of the Federal Advisory Council in passing on applications for projects.

If an application for a project is approved, the Surgeon General will certify to the Secretary of the Treasury an amount equal to the "federal percentage" of the estimated cost of the construction of the project, designate the appropriation from which it is to be paid and from time to time certify instalments to be paid on account. Certification of instalments will be made after such inspections and on such conditions designed to assure satisfactory completion of the project as the Surgeon General shall determine. Such certifications will provide for payments to the state, except that if a state is not authorized by law to make payments to the applicant the certification shall provide for payment to the applicant.

In determining whether to approve a project, in determining whether to certify an instalment and in any inspection authorized by the bill, the Surgeon General will as far as practicable utilize the services and advice of the Federal Works Agency in reviewing the title, working drawings and specifications of any project, supervising the awarding of contracts and inspecting the performance of the work.

CONFERENCES OF STATE AGENCIES

The Surgeon General will be authorized, in carrying out the provisions of the bill, to invite representatives of as many state agencies to confer with him as he deems necessary or proper. A conference of the representatives of all state agencies, however, must be called annually by the Surgeon General. If five or more of such agencies request it, the Surgeon General must call a conference of representatives of all state agencies joining in the request.

PROMULGATION OF REGULATIONS

The Surgeon General is authorized to make such regulations and perform such other functions as he finds necessary to carry out the provisions of the bill. All regulations with respect to grants to states for administrative purposes in carrying out plans or for construction projects, however, may be promulgated only on recommendation of the Federal Advisory Council, as before noted, and after consultation with state agencies. The bill provides that, as far as practicable, the Surgeon General shall obtain the agreement of state agencies prior to the promulgation of any such regulations or amendments.

MISCELLANEOUS

A "public health center" within the meaning of this bill means a publicly owned facility for the provision of public health services and medical care, including related facilities such as laboratories, clinics and administrative offices operated in connection with public health centers. A "nonprofit hospital" is defined to mean any hospital owned and operated by a corporation or association, no part of the net earnings of which inures to the benefit of any private shareholder or individual. The money that is allotted to a state for construction purposes may not be expended for the cost of the acquisition of land, except in connection with the construction of public health centers. The bill defines the term "state" to include Alaska, Hawaii, Puerto Rico and the District of Columbia.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Bills Introduced.—H. R. 1442, introduced by Representative Miller of Nebraska, proposes an amendment to the Social Security Act under which federal assistance would be made available to the states to permit them to provide medical, surgical and hospital care to individuals eligible for old age assistance. Any state, it is proposed, may provide for such care either through the purchase of insurance or through the administration of a plan by or under the supervision of a state agency. H. R. 1571 and H. R. 1572, both introduced by Representative Dickstein, New York, propose respectively that no regulation prescribing the qualifications of the members of the Army and Navy nurse corps shall require as a condition for appointment the registration under the laws of any state. H. R. 1188, introduced by Representative Mott, Oregon, would authorize the Director of the Census to issue certifications of birth records. H. R. 1385, introduced by Representative Talbot, Connecticut, proposes that any blind person who is traveling on a train being operated by any common carrier by railroad subject to the Interstate Commerce Act may keep his seeing-eye dog with him in any coach or Pullman car of the train. H. R. 562, introduced, by request, by Representative Rankin, Mississippi, proposes to extend to all service connected disabled veterans in need thereof and feasible therefor eligibility for vocational rehabilitation under the laws administered by the Veterans' Administration. H. R. 1373, introduced by Representative McDonough, California, proposes a federal appropriation of $2,600,000 for the construction of a marine hospital in or near Los Angeles and for the acquisition of a suitable site. S. 235, introduced by Senator Langer, North Dakota, proposes to prohibit the requirement of the taking of the so-called pauper's oath by certain veteran applicants for hospital treatment or domiciliary care. H. R. 710, introduced by Representative Dickstein, New York, declares it to be unlawful to alter or attempt to alter any part of the inner surface of one's own or any other person's hand or hands for the purpose of preventing identification by the use of fingerprints. H. R. 758, introduced, by request, by Representative Pace, Georgia, provides for the development of better diets and an improved nutritional status for the people of the United States. S. 330, introduced by Senator White, for himself and Senator Brewster, both of Maine,

and H. R. 587, introduced by Representative Smith, Maine, propose the creation of a Division of Water Pollution Control in the United States Public Health Service. H. R. 612, introduced by Representative Tolan, California, and H. R. 1411, introduced by Representative Angell, Oregon, propose to amend the Social Security Act to provide grants to the states for the physically disabled. H. R. 650, introduced by Representative Allen, Louisiana, provides that any person who served in the military or naval forces of the United States during a recognized campaign or expedition, who was honorably discharged from such service, shall be granted hospital and domiciliary care by the Veterans Administration subject to the same restrictions and limitations as are now applicable to World War veterans. H. R. 1289, introduced by Representative Peterson, Florida, proposes to authorize hospitalization of retired officers and enlisted men of the armed forces who are peacetime veterans. H. R. 1412, introduced by Representative Angell, Oregon, proposes to authorize the Secretary of the Interior to locate, establish, construct, equip and operate a hospital for the insane of Alaska. H. R. 1513, introduced by Representative Kilday, Texas, would provide dispensary treatment and hospitalization in Army and Navy hospitals for retired enlisted men of the Army, Navy, Marine Corps and Coast Guard. H. R. 1581, introduced, by request, by Representative Rankin, Mississippi, would provide orthopedic and prosthetic appliances to veterans of any war discharged under conditions other than dishonorable.

STATE LEGISLATION

Arkansas

Bill Introduced.—H. 2 proposes to prohibit a county clerk from issuing a marriage license unless both applicants to the proposed marriage present a certificate of the state health department of any state showing that a blood test of the party has been made and that that test indicated freedom from syphilis in the active stage.

Indiana

Bill Introduced.—S. 37, to amend the workmen's compensation act, proposes, among other things, to require an employer to provide for an injured employee necessary first aid, medical and surgical services and all necessary medical and hospital services limited to that which is reasonably required to cure or relieve the effects of the injury for 180 days, unless the industrial board orders a longer period.

Maryland

Bills Introduced.—S. 66 proposes to prohibit the operation of a hospital without possessing a license to do so from the State Board of Health. The term "hospital" is defined in the bill to mean "any institution which maintains and operates facilities for the care and/or treatment of two (2) or more nonrelated persons as patients suffering mental or physical ailments." S. 86 to amend the law authorizing the formation and operation of nonprofit hospital service plans, proposes to permit the operation by one corporation of both medical and hospital service plans.

Massachusetts

Bill Introduced.—S. 86 proposes to provide cash sickness compensation for an employee who is unable to work because of sickness. Benefits are to be paid from a fund which is to be established by contributions from the employe of 1 per cent of wages paid him and by an equal contribution from the employer.

Minnesota

Bill Introduced.—H. 82 proposes to create a commission to select a site for the erection of another state school for the feebleminded and to authorize the establishment of such an institution.

Montana

Bill Introduced.—H. 4 proposes as soon as practicable to establish a new state hospital for the insane and to utilize the facilities presently used for the state hospital for the insane to care for persons who by reason of age and infirmity require care and treatment but who are not actually insane.

Nebraska

Bills Introduced.—L. B. 46 proposes, in effect, to authorize an osteopathic practitioner to execute the physician's certificate as to freedom from venereal disease required with respect to each party to a prospective marriage as a condition precedent to issuance of license to marry. L. B. 47, to amend the medical practice act, proposes that two of the seven members of the board of examiners in medicine and surgery shall be graduates of an accredited school of osteopathy. L. B. 75, to amend the nursing practice act, proposes to prohibit a person from practicing as a registered nurse anesthetist unless possessing a license to practice nursing.

New York

Bills Introduced.—S. 94 and A. 98 propose to enact a separate chiropractic practice act and to create an independent state board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The practice of chiropractic is defined as "the science of locating and the removing of nerve interference in the human body, according to chiropractic principles, where such interference is the result of or caused by misalignment or subluxations of the vertebral column. It excludes operative surgery, the reduction of fractures, the prescription or use of drugs or medicine, and the practice of obstetrics." A. 260 proposes to provide for the establishment and administration of a system of compulsory health insurance.

North Carolina

Bill Introduced.—H. 22 proposes that in an action to determine the paternity of a child the court may order the defendant, the mother and the child to submit to a blood grouping test and to make the results of the blood grouping test admissible in evidence when offered by a duly licensed practicing physician.

Oklahoma

Bill Introduced.—H. 81 proposes to prohibit a county clerk from issuing a license to marry unless each party to the proposed marriage files a certificate signed by a licensed physician that the party is free from any venereal disease.

Oregon

Bills Introduced.—S. 3 proposes to authorize the state board of control to establish and operate in Multnomah County a hospital for the mentally diseased if the electorate of the state approve in a referendum provided for in the bill. H. 20, to amend the workmen's compensation act, proposes to provide compensation for a hernia if the injured workman proves that the hernia was the result of strain or injury arising out of and in the course of employment. The present law requires the worker to prove that the hernia was immediately preceded by an accident arising out of and in the course of employment.

Pennsylvania

Bill Introduced.—S. 18, to amend the law regulating the sale of stated hypnotic, analgesic and weight reduction drugs, proposes to add to the drugs so embraced "Amphetamine (Benzedrine) and Thyroid." Such drugs can be sold at retail only on the written prescription of a licensed physician, dentist or veterinarian.

South Dakota

Bill Introduced.—H. 21 proposes apparently to add to the act regulating the operation of county hospitals a provision that prohibits the board of trustees of such a hospital and its management from discriminating between practitioners of the various healing arts and to confer on every duly licensed doctor of medicine and osteopathic "physician" the right to practice in said county hospital.

Tennessee

Bills Introduced.—S. 96 and H. 158, to amend the naturopathic practice act, proposes to require an applicant to practice naturopathy to have graduated from a four year high school course, to have completed two years' actual attendance at an accredited college and to have completed courses in general inorganic chemistry, organic chemistry, biology and physics before entering the school where he obtains his "professional" education.

Texas

Bill Introduced.—S. 29 proposes to enact a communicable disease control act which, among other things, (1) defines a communicable disease as any disease that may be transmitted from one person or animal to another person or animal either directly or indirectly; (2) requires physicians to report cases of reportable communicable diseases to designated health authorities; (3) authorizes the establishment of quarantine under the circumstances stated, and (4) states specific control measures for designated reportable diseases.

Utah

Bills Introduced.—S. 6 proposes to authorize the establishment and operation by the state of a hospital for poliomyelitis and children's diseases. S. 7 authorizes the establishment and operation of local full time county, city-county and/or district health departments. S. 23 proposes to permit the county commissioners to authorize the admittance to any county hospital of private patients who are financially able to pay for the cost of care and maintenance at that hospital. S. 26 proposes to prohibit, without a license from the state department of health, the operation of a maternity hospital or place of any kind in which prepartum or postpartum care is rendered. S. 27 proposes to authorize the state board of health to make and enforce rules and regulations providing for the reporting of occupational diseases.

Washington

Bills Introduced.—S. 6 proposes to authorize the establishment and operation of a medical and dental school at the University of Washington and to appropriate $450,000 for such purpose. H. 13 proposes to make it unlawful for any person, corporation, partnership or association to dispense or sell any lenses for the purpose of correcting or aiding vision except on the prescription of a duly licensed physician or optometrist.

Washington Letter

(From a Special Correspondent)

Jan. 22, 1945.

Request for Medical Insurance Is Renewed

The Social Security Board, in presenting its program for "cradle to grave" social security today, renewed its request for medical insurance. The board's annual report said that medical insurance could be introduced without socializing medicine or regimenting physicians. It pointed out that, despite a common belief that the United States is the world's healthiest nation, other countries have lower death rates and higher life expectancy rates. The board's proposals, expected to incorporate President Roosevelt's forthcoming recommendations to Congress, are substantially the same as those made a year ago. They ask for broadened coverage of old age and survivors' insurance, liberalized unemployment benefits and establishment of medical and disability insurance. Given little attention by Congress last year, they are expected to get further this year, since both political parties urged broader social security coverage during the election campaign. Advocating a system of disability insurance, the report stated that an average of seven million persons were sick or disabled on an average working day. In its request for a system of insurance to prepay the costs of medical and hospital care, the board said that it "disavowed" socialized medicine and "regimentation" of physicians. It said that these "much advertised fears" were "wholly groundless." The board said that the principal reason for the lack of medical care is the present method of paying for it.

Army Would Commission Nurses as Lieutenants

The Army "never had the slightest intention of drafting nurses as privates but will commission them as second lieutenants, whether or not they volunteer," Surg. Gen. Norman T. Kirk told a hearing of the House Military Affairs Committee. He urged an immediate nurse draft, declaring that he was convinced that appeals for volunteers would not bring in the 20,000 nurses needed by June to meet the 270 per cent increase in overseas casualties. General Kirk revealed that the Army is returning 30,000 to 32,000 overseas casualties each month to American hospitals. Last year 8,500 were returned monthly. Furthermore, only 15,000 leave the hospitals each month. Between May and December of 1944, when 27,000 nurses graduated from hospital schools, only 2,000 nurses volunteered for the Army Nurse Corps, he said. General Kirk said that only 2 per cent of all volunteers had been turned down for not meeting requirements. Every Negro nurse who applies and meets requirements will be accepted, he stated. Male nurses, however, will still not be commissioned in the nurse corps but will have an opportunity to become medical administrative corps officers.

Probe of Veteran Neuropsychiatric Problem Urged

Increased attention is being given here to the problem of the discharged war veteran afflicted with a neuropsychiatric condition as a result of war service. It has been suggested that an overall investigation of veterans' affairs might help to focus attention on this as well as on other aspects of treatment of the returning war veteran. A coordinating agency has been proposed to bring together the activities relating to veterans now being handled separately by the Veterans Administration, the Federal Security Administration, which has state rehabilitation offices, the U. S. Employment Service, the U. S. Bureau of Education, Selective Service, the U. S. Public Health Service and the War and Navy departments. One major difficulty with regard to treatment and restoration of neuropsychiatric veterans is the lack of trained psychiatrists. It was suggested that the G I Bill of Rights provide for their training.

Abolition of Nation's Slums Recommended

Congress has received an estimate from the American Institute of Planners that it would cost 12 to 15 billion dollars to buy up and demolish America's benighted areas. The information came in testimony of Alfred Beltman before the Senate Subcommittee on Postwar Economic Policy. He urged that the federal government back such a program, financed with 750 million dollars a year, which might eventually cost the government nothing under a plan whereby the future yield from redeveloped areas would repay the Treasury.

Soviet Clears Way for UNRRA Supplies

The Soviet Union is clearing the way for shipments of United Nations Relief and Rehabilitation supplies to Poland and Czechoslovakia, according to announcement here of Herbert H. Lehman, director general. He said that the Soviet Union has advised UNRRA that Black Sea port reception facilities and inland transport for food, clothing, medical supplies and other relief goods would be available. Mr. Lehman said it would now be possible to make the first shipment of relief supplies to these two liberated countries.

Official Notes

DOCTORS LOOK AHEAD

The American Medical Association and the National Broadcasting Company are presenting the twelfth consecutive season of nationwide network health broadcasts weekly from January 6 to June 30, 1945. Included in the series are broadcasts relating to wartime and postwar developments, with special emphasis on medical progress of the present day and what it foreshadows for the nation's health in the immediate future.

Topics in the series, which is called Doctors Look Ahead, will be announced weekly in THE JOURNAL and monthly in *Hygeia*. Fast moving events may, however, cause last minute substitutions. Local newspapers should be consulted for announcements of time and stations. The program will be broadcast each Saturday at 4 p. m. Eastern War Time (3 p. m. Central, 2 p. m. Mountain and 1 p. m. Pacific War Time). When conflicts exist with local programs, rebroadcast may be arranged at hours other than on the network schedule. The next three topics are:

January 27. Penicillin (Dr. Austin Smith).
February 3. Social Hygiene.
February 10. Heart Disease (Dr. Edwin P. Jordan).

The broadcast will be under the supervision of the Bureau of Health Education, whose director, Dr. W. W. Bauer, will summarize each program except when another speaker is announced.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

New Head of Industrial Hygiene.—Irving R. Tabershaw, surgeon, U. S. Public Health Service Reserve, assigned to the division of occupational hygiene, Massachusetts Department of Labor and Industries, Boston, has been assigned to the Alabama Department of Public Health to serve as director of the division of industrial hygiene, Birmingham, effective January 1. Dr. Tabershaw succeeds Dr. George A. Shipman.

CONNECTICUT

Campaign for Society's New Home.—Pledges and gifts are now being received by the Connecticut State Medical Society in its campaign for $50,000 to defray the cost of a new home for the society.

Society News.—Drs. James R. Miller and Clinton D. Deming, both of Hartford, were chosen president and secretary, respectively, of the New England Surgical Society at its recent annual meeting.

DELAWARE

Society News.—Dr. Thomas Nelson Carey, associate professor of medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, discussed "Rocky Mountain Spotted Fever" before the New Castle County Medical Society of Delaware, January 16, in Wilmington.

ILLINOIS

Fellowship Created for Dr. Stolp.—A medical fellowship has been established at the Evanston Hospital, Evanston, in memory of the late Dr. Rufus B. Stolp, Wilmette, who was for many years chief of the medical staff of the contagious department of the hospital. The fellowship will support a research project at the hospital each year. Dr. Stolp was formerly a resident of Kenilworth and was one of the founders and first president of the Kenilworth Historical Society. He died Nov. 3, 1942.

Chicago

Grants to Illinois.—The University of Illinois College of Medicine recently received a grant of $23,000 from the Field Foundation for a study in allergy and an anonymous gift of $20,000 for visual aid studies.

Conference on Rehabilitation Canceled.—The Midwest Conference on Rehabilitation of the Institute of Medicine of Chicago, scheduled to be held February 12, has been canceled. The sixth Frank Billings Lecture of the Thomas Lewis Gilmer Foundation of the institute is also canceled. The lecture was to be given the evening of February 12 at the Drake Hotel by Col. Howard A. Rusk, M. C., chief, convalescent training division, Office of the Air Surgeon.

Administrative Changes at University of Chicago.—Among the recent changes in the Division of Biological Sciences, including the University of Chicago School of Medicine, are the appointment of Dr. William H. Taliaferro, Eliakim Hastings Moore distinguished service professor of parasitology, as adviser to the president in the biological sciences. The deanship vacated by Dr. Taliaferro has been assumed by Roland W. Harrison, Ph.D., professor of bacteriology, who has been acting dean of the Division of Biological Sciences. Dr. Arthur C. Bachmeyer will continue as associate dean of the division and director of the university clinics, spending part time until 1946 as director of study for the Commission on Hospital Care. *Science* reports that Dr. Basil C. H. Harvey, acting dean of students of the division, including the school of medicine, during the past year, has retired. F. Joseph Mullin, Ph.D., assistant professor of physiology, has been appointed assistant dean of students, pending the appointment of a dean.

Medical Alumni Group Reorganized at University of Chicago.—The *Bulletin of the Alumni Association* of the University of Chicago School of Medicine has just made its appearance as a new feature of the general reorganization of the medical alumni group that has been under way for several months. Another new feature is the creation of a senate which will serve as the ruling body; it is composed of the officers, representatives of all classes that have graduated at the medical school, the junior and senior classes, the editorial board of the Yearbook, which was published for the first time in 1944 (THE JOURNAL, June 10, 1944, p. 439), and representatives of the faculty. The Medical Alumni Association has been relatively inactive for a number of years; the creation of the senate body, with its broadening powers for development and its plan to hold quarterly meetings will promote a well coordinated program of alumni activity. At the first meeting of the senate at the Quadrangle Club, January 18, Mr. Charlton Beck, executive secretary of the Alumni Association of the University of Chicago, was made an honorary member of the Medical Alumni Association and presented with the first key to be awarded by the group. Officers of the Medical Alumni Association include Drs. Victor Johnson, Secretary of the Council on Medical Education and Hospitals of the American Medical Association and professorial lecturer in physiology at the university, president; Joseph Alfred Rider, now serving an internship at Presbyterian Hospital, vice president; John V. Prohaska, treasurer, and Hilger H. Jenkins, associate professor of surgery at the university, secretary.

INDIANA

Personal.—Frank S. Stafford, M.S., director of the division of health and physical education, Indiana State Board of Health, has been given a leave of absence until July 1, 1945 to go to Washington to head the physical fitness program under the United States commissioner of education, John W. Studebaker.——Dr. Harry P. Ross, president of the Richmond Board of Health, has been appointed a member of the state board of health to fill the unexpired term of the late Dr. Henry C. Metcalf.

New Department of Preventive Medicine.—Dr. Gerald F. Kempf, head of the communicable disease service at the Indianapolis City Hospital, has been appointed superintendent of preventive medicine in the Indianapolis City Board of Health, effective January 1. The position is a new one and is the beginning of an expanded program of public health education. In his new capacity Dr. Kempf will also serve as assistant to Dr. Herman G. Morgan, secretary of the city board of health.

Lectureship Created for Dr. Barnhill.—A lectureship has been established at the Indiana University School of Medicine, Indianapolis, by Phi Delta Upsilon in memory of the late Dr. John Finch Barnhill, for many years connected with the university in the department of otolaryngology and head surgery. A plaque will be hung in the medical school on which will be placed each year the name of the freshman medical student who has done the most outstanding work in anatomy. The name of Maurice A. Turner, Indianapolis, a freshman student of last year, is the first name to be placed on the plaque.

Secretaries' Conference.—The Indiana State Medical Association held its annual Secretaries' Conference at the Claypool Hotel, Indianapolis, January 21. Among the speakers were:

Mary Walsh, educational director, state board of examination and registration of nurses, Indianapolis, The Bolton Law and Its Relationship to the Patient.

Don C. Hawkins, special agent, American Health Insurance Corporation, Chicago, Group Malpractice Insurance and Health and Sickness Insurance.

Dr. John D. Van Nuys, medical director, Indiana University Medical Center, Indianapolis, Children's Bureau Program.

Drs. Norman M. Beatty and J. William Wright, co-chairmen, Committee on Public Policy and Legislation, state medical association, Indianapolis, Legislative Program.

Dr. John H. Fitzgibbon, Portland, Ore., chairman, American Medical Association Council on Medical Service and Public Relations.

Dr. Orley E. Wilson, secretary, Elkhart County Medical Society, Elkhart, How Local Societies are Meeting Present Emergencies.

Lieut. Col. Harold C. Lueth, Surgeon's General Liaison Officer to the American Medical Association, Future Trends in Medical Practice.

Dr. Eldridge M. Shanklin, Hammond, editor, *Journal of the Indiana State Medical Association.*

At the dinner session the speakers were Drs. Nelson K. Forster, Hammond, president, state medical association, and Walter H. Judd, congressman, Minnesota, on "Problems Facing the New Congress and the American People."

MARYLAND

Exhibit of Medical Art.—A collection of the work of the late Max Brödel is the focal point of interest in a display of medical art at the Enoch Pratt Free Library, Baltimore, which opened January 8 and will continue through January 29. The collection was lent by the department of art as applied to medicine, Johns Hopkins University School of Medicine.

Other exhibitors include the daughter of Professor Brödel, Elizabeth Brödel, now with New York Hospital; Tom Jones, head of the department of art, University of Illinois, and Mr. Willard C. Shepard, art editor, W. B. Saunders Company, Philadelphia.

Association of Private Practicing Psychiatrists.—On December 5 the Baltimore Association of Private Practicing Psychiatrists was organized to investigate the problems of private psychiatric practice in the community. Members of a preliminary planning committee are Drs. Wendell S. Muncie, chairman, Horace K. Richardson and Robert V. Seliger. In announcing the creation of the society, which stemmed from the increased work thrown on the practicing psychiatrist, it was stated that a group was needed both to pool thoughts, opinions and feelings relative to dynamics, psychotherapy, mental hygiene, the practical items of hospital and extramural treatment facilities, community education and medical economics, and from this to bring out the second point, constructive results and the development of the foregoing plus consideration and methods of having certain psychiatric patients admitted to general hospitals, and conference meetings with the heads of the city and state full time mental hospital systems. The group is interested in having similar groups and opinions from other cities throughout the country. Those physicians who are interested should communicate with Dr. Muncie, 11 East Chase Street, Baltimore.

MICHIGAN

Personal.—Thomas L. Patterson, Ph.D., since 1941 research professor of physiology, Wayne University College of Medicine, Detroit, recently received the honorary degree of doctor of science from Clark University, Worcester, Mass., in recognition not only of "his contributions through teaching and research but also in his human relationships; eminent for his research work and numerous publications in the field of his chosen science, physiology; a devoted student of the problems pertaining to human health."

Joint Project for Care of Expectant Mothers.—The Wayne County Medical Society and the Detroit Department of Health are cooperating in a program of group discussion and demonstration for the expectant mother. The physician may refer patients to a series of classes in antepartum education including bath demonstration, infant clothing and general child care. Admission to the classes will be by card signed by the attending physician. The discussion will be directed by qualified nurses under the supervision of the medical society, and material for demonstrations will be furnished by the society. The conferences started at the David Whitney House, January 17, and will be held weekly.

Miner Memorial Fund.—A $10,000 scholarship fund for medical students has been established at Wayne University by Mrs. Marion M. Leahy and Helen I. Miner as a memorial to their father, the late Dr. Stanley G. Miner. Born in Detroit in 1861, Dr. Miner was a graduate of the Wayne University College of Medicine, Detroit, and served on its faculty as professor of otology, laryngology, rhinology and physical diagnosis. He also was a member of the staff of St. Mary's Hospital and was at one time chief of staff for that institution. From 1913 to 1919 he was a member of the Detroit Public Welfare Commission and was actively interested in the establishment of Receiving Hospital. He died June 28, 1942.

MINNESOTA

Journal-Lancet Lecture.—Brig. Gen. James S. Simmons, chief of the division of preventive medicine, Office of the Surgeon General, delivered the fourth annual Journal-Lancet Lecture Dec. 7, 1944 at the University of Minnesota Medical School, Minneapolis. His subject was "Recent Advances in the Control of Insect Borne Diseases."

Proposed Industrial Health and Efficiency Committee.—The University of Minnesota Medical School, Minneapolis, has announced its plan to create an industrial health and efficiency committee to assemble and coordinate the activities of the school in industrial medicine and to devise ways and means of making immediately available to industry discoveries and developments in this field. At a recent meeting at which Dr. Harold S. Diehl, dean of medical sciences at Minnesota, announced plans for the Mayo Memorial (THE JOURNAL, January 13, p. 111), consideration was given to the relationship and value of the memorial to the industries of the state, this point having been discussed at a previous meeting of the committee of founders of the memorial. The creation of the industrial health and efficiency committee was believed the best step in developing a coordinated program at the university to ensure a comprehensive and well regulated development of research teaching programs and other matters incidental to industrial health and medicine. It was proposed that the committee consist of the heads of the departments of the school of medicine most immediately concerned with the program.

License Suspended.—On Nov. 10, 1944 the Minnesota State Board of Medical Examiners suspended for a period of three years the license to practice medicine formerly held by Dr. Milton C. Wolf, who was associated for many years with the Heidelberg Medical Institute, St. Paul, and which in recent years has been known as the Mid-West Clinic. Dr. Wolf's license was suspended following a complaint that he had obtained $74 in advance from a 26 year old male patient who had gone to Dr. Wolf complaining of pain in the lower part of his back. The patient testified at a hearing before the Minnesota State Board of Medical Examiners that he was questioned at length by an unlicensed associate of Dr. Wolf's in reference to sexual matters and lost manhood, notwithstanding the fact that the patient stated that he had been employed for four and one-half years in a foundry and had injured his back. The patient further testified that he was advised that the usual charge was $150 as a down payment and $5 per week for treatments but that in his case the charge would be only $100 plus the charge for weekly treatments, and a guaranty "that he would be a man again." During the investigation by Mr. Brist on behalf of the Minnesota State Board of Medical Examiners, the money was returned to the patient. Dr. Wolf was born in Chicago in 1876 and graduated at the College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, in 1898. He was licensed in Minnesota in 1905 by examination. Dr. Wolf previously had been warned by the state board of medical examiners with respect to his practice at the Heidelberg Institute and the Mid-West Clinic.

NEBRASKA

Ninety-Six Years of Age.—Dr. James K. Newman, Omaha, observed his ninety-sixth birthday, January 5. Dr. Newman graduated at the Universidad Nacional Facultad de Medicina, Mexico, D. F., in 1879.

Dr. Joslin Gives Alpha Omega Alpha Lecture.—Dr. Elliott P. Joslin, professor emeritus of clinical medicine, Harvard Medical School, Boston, delivered the annual address before the Alpha Omega Alpha chapter of the University of Nebraska College of Medicine, Omaha, January 18, on "Diabetes Today."

NEW JERSEY

Hospital Restricts Employment of Private Nurses.—To help increase the supply of nurses available for military service, the board of managers of St. Elizabeth Hospital, Elizabeth, on January 3 restricted the employment of private nurses. In a statement to the press it was stated that the hospital would not assign any nurses under 45 years of age to private duty unless they were mothers of children under 14 or had been found unfit for military service.

NEW YORK

Graduate Lecture.—Dr. William Goldring, associate professor of medicine, New York University College of Medicine, will address the Nassau County Medical Society, Rockville Centre, February 27, on "Hypertension and Hypertensive Heart Disease."

Forum on Rabies.—To give the public a truer knowledge of the nature of rabies and its common methods of transmission and possible means of control, the Westchester County Medical Society held a forum on rabies January 17 at the County Center in White Plains. The speakers were Dr. James E. Perkins, Albany, director, division of communicable diseases, state department of health, and James E. Assing, formerly veterinarian for the New York City Health Department, engaged in rabies control and eradication.

Secretaries Named for State Society.—Dr. Walter P. Anderton, a practicing physician in New York since 1913 and assistant professor of clinical medicine at Columbia University College of Physicians and Surgeons, was appointed secretary of the Medical Society of the State of New York at a meeting of the society's council, January 11. He succeeds the late Dr. Peter Irving. Dr. Anderton graduated at Columbia in 1911. He received his license to practice in New York in 1913. Dr. Robert Roger Hannon, formerly assistant professor of medicine, Albany Medical College, and secretary of the state board of medical examiners, Department of Education, Albany, has been named executive officer of the Medical

Society of the State of New York, with offices in Albany. He fills the vacancy that occurred when Dr. Joseph S. Lawrence joined the staff of the American Medical Association, with offices in Washington, D. C. Dr. Hannon graduated at Johns Hopkins University School of Medicine, Baltimore, in 1919 and subsequently has served on the staffs of Johns Hopkins, Cornell University Medical College, University of Rochester School of Medicine and Dentistry, and the Peiping Union Medical College, Peking, China.

New York City

Dr. Bristol Resigns as Executive Director of Hospital Council. — Dr. Leverett D. Bristol has resigned as executive director of the Hospital Council of Greater New York because of ill health. Prior to his appointment to this position (THE JOURNAL, Nov. 27, 1943, p. 850) Dr. Bristol served as health director of the American Telephone and Telegraph Company. Dr. Bristol is a member of the Council on Industrial Health of the American Medical Association.

Personal.—A silver vase was presented at a dinner to Dr. Howard W. Neail, Jamaica, who retired recently after thirty-five years as a medical examiner in Queens County. The presentation was made by Dr. L. Howard Moss, Richmond Hill, member of the medical board and of the board of trustees of Jamaica Hospital, where Dr. Neail had worked since his internship in 1909. He was chief of the hospital's department of gynecology and was recently retired with the title gynecologist emeritus.——Dr. Robert C. Darling has been appointed associate professor of medicine at Columbia University College of Physicians and Surgeons.

The Future of the American Family.—A symposium on "The Future of the American Family" was held at the Waldorf-Astoria Hotel, New York, January 23 (THE JOURNAL, January 20, p. 175) under the auspices of the American Education Fellowship, Child Study Association of America, Editors of the Survey Publications, National Child Labor Committee, National Committee for Mental Hygiene, National Committee on Housing, National Council of Negro Women, National Council for Parent Education and the Planned Parenthood Federation of America. The major federal agencies concerned with the family and other national voluntary agencies cooperated in providing discussion material for the symposium program.

Eye Examinations Start Union Health Plan. — With $2,924,000 collected since May, a health and vacation fund for 80,000 dressmakers in New York and vicinity began operation January 3 with an eye examination given to 150 employees of the Apex Dress Company by physicians and assistants from the union health center. All workers will receive examinations in the 2,215 shops of the industry. Workers with defective vision will be referred to the health center for further medical treatment, and corrective treatment and eyeglasses will be furnished free of charge. The eye program will be a part of the health conservation and sickness benefit plan established under the health fund. The New York *Times* reports that hospitalization, medical service, illness disability benefits and aid to workers suffering from tuberculosis are to be developed. With the health program will be combined free vacations with payments of $23 to $38 to cover a week away from work. The fund was created eight months ago in the collective agreement between the dressmakers union and the four employer associations in the industry.

OHIO

State Meeting Canceled.—The Ohio State Medical Association announced on January 16 that the ninety-ninth annual meeting of the Ohio State Medical Association, which had been scheduled to be held in Columbus, May 1-3, has been canceled.

Radio Series on Health.—The Cleveland Health Museum, in cooperation with the Cleveland Dental Society, the Academy of Medicine of Cleveland and the Cleveland Mental Hygiene Association, began a new series of radio lectures over Station WGAR, December 12, with a talk by Dr. Henry C. Schumacher, director of the Cleveland Guidance Clinic, on "Your Mind and You." Others in the series include:

Calvin O. Fritz, D.D.S., and class, Western Reserve University, Triumph Over Pain, December 19.
Mrs. James D. Polley, Family Health Association, The Parent and the Happy Child, December 26.
Dr. James F. Slowey, Vitamins, Their Use and Abuse, January 2.
Bertha M. Luckey, Ph.D., board of education, Guiding Teen Age Youth in Home and School, January 9.
Dr. Frank F. Tallman, commissioner of mental diseases, Columbus, Better Mental Health for Ohio Citizens, January 16.
Dr. Richard E. Stout, Worry and Nervous Tension, January 23.
Dr. Joseph L. Fetterman, What the Community Can Do to Aid Returning Servicemen, January 30.
Francis A. Arnold, D.D.S., U. S. Public Health Service, Tooth Decay Can Be Controlled, February 6.

OREGON

Personal. — Dr. Wilmot C. Foster, Portland, has been appointed by the governor as a member of the state board of medical examiners to fill the vacancy that occurred with the death of Dr. Harold L. Blosser.

Noble Wiley Jones Honored.—On December 14 the Portland Academy of Medicine, at its annual dinner meeting at the Heathman Hotel, honored Dr. Noble Wiley Jones, who has practiced in Portland since 1907, for his years of service to the academy. Dr. Laurence Selling, professor of medicine and neurology, discussed his contribution to scientific medicine, Dr. Homer P. Rush, associate clinical professor of medicine, to the practice of medicine, and Olof Larsell, Sc.D., professor of anatomy, to medical education. All are members of the faculty of the University of Oregon Medical School, Portland. Dr. Jones is a member of the committee appointed to form the Medical Research Foundation sponsored by the Portland Academy of Medicine and designed to aid medical research in the vicinity and a member of the library committee of the academy and of the medical school. He has served as secretary and president of the Portland Academy of Medicine.

TEXAS

Physician Honored with Gift for New Hospital.—A charter and war bonds to use as payment for the erection of the first wing of a hospital in Grand Saline was given to Dr. V. Bascom Cozby at a meeting of the local Lions Club recently. Mr. E. B. Germany, oil operator in Dallas and a native of Grand Saline, is the donor of the gift. When completed the hospital will be known as the Cozby-Germany Hospital.

University News.—The National Live Stock and Meat Board of Chicago has donated $7,200 to the University of Texas Medical Branch, Galveston, for the support of work in fat metabolism under the direction of Dr. Arild E. Hansen, professor of pediatrics and director of the child health program. The work of the child health program is supported by the William Buchanan Foundation of Texarkana. A grant of $1,800 has been made by the Abbott Laboratories of Chicago to the department of internal medicine at the medical school to support research work of Dr. Charles T. Stone, professor of internal medicine.

UTAH

Changes in the Faculty.—Dr. A. Cyril Callister, dean of the University of Utah School of Medicine, Salt Lake City 1, has announced the following changes in the faculty:

Dr. Francis D. Gunn, formerly associate professor of pathology at Northwestern University Medical School, Chicago, appointed professor and head of the department of pathology (THE JOURNAL, Aug. 26, 1944, p. 1201).

Dr. Hans Hecht, formerly instructor in medicine, Wayne University College of Medicine, Detroit, appointed instructor in medicine.

Dr. Louis S. Goodman, professor of pharmacology at University of Vermont College of Medicine, Burlington, appointed professor of pharmacology and chairman of the department of pharmacology and physiology.

James E. P. Toman, Ph.D., instructor in pharmacology and physiology at the University of Vermont College of Medicine, appointed assistant professor of physiology.

Corrine Manuel, B.S., M.T., appointed research assistant in the department of pharmacology.

Abbott Laboratories, North Chicago, Ill., has made an additional grant of $1,500 to Dr. Goodman for the study of new anticonvulsants and analgesic compounds. The Givaudan-Delawanna, Inc., New York, has made a grant of $16,000 to Dr. Goodman to be expended over a period of two years for the purpose of investigating a large series of new organic compounds for their pharmacodynamic properties and therapeutic actions.

WASHINGTON

Hospital News.—A $350,000 addition is being constructed at St. Elizabeth's Hospital, Yakima. The addition is four stories high with a bed capacity of 50 and will contain, among other things, an isolation department, physical therapy rooms and a psychiatric ward.——Dr. Stanton A. McCool Jr., newly appointed health officer of Elma, has purchased the Elma General Hospital.

Portrait of Dr. Ward.—Ceremonies were held recently to unveil the portrait of Dr. Charles Byron Ward and to mark its presentation to the King County Medical Society. In making the presentation Dr. Homer D. Dudley, Seattle, reviewed the career of the late Dr. Ward, to whom goes the credit for the development of the King County Society Library, which, while established in 1898, took on new status in 1931 when Dr. Ward arrived in Seattle and became interested in it. Until 1936 the library had been supported by

private subscription, and Dr. Ward is credited with the adoption of a by-law by the county medical society assessing each of its members $10 a year for its support. Dr. James E. Hunter, Seattle, accepted the portrait, the work of Mr. Neale Ordayne, which will hang in the library, on behalf of the medical society.

WEST VIRGINIA

Changes in Health Personnel. — Dr. Elias W. Langs, U. S. Public Health Service Reserve, former district health officer for Norfolk and Princess Anne counties, Va., has been appointed acting director of the division of communicable diseases, state health department, to succeed Dr. Albert M. Price, Charleston, resigned. Dr. James T. Duncan, director of the bureau of tuberculosis, has been serving as acting director of the division of communicable diseases since September 1944.——Dr. Martin B. Woodward, director of the division of vital statistics, state health department, has resigned and is now on the staff at the Washoe County General Hospital, Reno, Nev. No successor has yet been appointed.

GENERAL

O. M. Goodloe Joins American Red Cross.—Dr. Ollie M. Goodloe, Lexington, Ky., formerly assistant director, bureau of county health work, for the Kentucky State Department of Health and recently deputy director of the Peoria Health Department, Peoria, Ill., has been appointed medical director of the eastern area of the American Red Cross.

Examinations for Technicians.—The American Orthoptic Council announces that its next examination will be held in September and October. The written examinations will be held at various cities in the country on Friday, September 7. Only those passing the written examinations will be permitted to take the oral and practical tests, to be given in Chicago on Saturday, October 6. Applications on official forms must be received before July 1. Address the American Orthoptic Council, 23 East 79th Street, New York 21.

The American Woman and the American Home of Tomorrow.—The Woman's Foundation has announced a conference to be held at the Westchester Country Club in Rye, N. Y., March 1-5, the theme of which will be "The American Woman and the American Home of Tomorrow." The foundation was granted a charter under the laws of Missouri, March 6, 1942 as a nonprofit organization, sponsored by the board of Stephens College, Columbia, Mo., and under the direction of a board of trustees. Under the provisions of its charter the foundation will engage in "the study of problems of the American home and of the American woman who must, in the home, face and deal with those problems of a practical, educational, cultural, moral and religious nature which vitally affect the health, efficiency, character and citizenship of the American people."

One Hundred Years of Pharmacy. — Sharp & Dohme, Inc., Philadelphia, is this year observing its one hundredth anniversary. The growth of the firm stemmed from a drugstore at Pratt and Howard streets, Baltimore, opened in 1845 by Alpheus Phineas Sharp, Winchester, Va., who three years earlier was the first graduate of the Maryland College of Pharmacy. In 1852 Mr. Sharp employed an apprentice, Louis Dohme, who did odd jobs around the store and in between times attended the Maryand College of Pharmacy, where he graduated in 1857. In 1860 he was made a partner, and the firm name was changed to Sharp & Dohme. A younger brother of Louis Dohme, Charles, who graduated at the Maryland College of Pharmacy in 1862, later joined the firm, and his son, Alfred R. L. Dohme, Ph.D., Baltimore, later became head of the company and is still a director.

Schering Awards to Medical Students.—Announcement of winners in the Schering award competition, open to undergraduate medical students in the United States and Canada, has been made by the committee of judges. Choosing from a large number of manuscripts on the subject "Hormones and Cancer," the committee has made the following awards:

First Prize, $500, Maurice L. Silver, class of 1945, Loyola University School of Medicine, Chicago.

Second Prize, $300, Sidney L. Kafka, class of February 1945, Middlesex University School of Medicine, Waltham, Mass.

Third Prize, tie, duplicate awards of $200 each to Roslyn Wiener, class of 1945, University of Michigan Medical School, Ann Arbor, and Norman B. Hirt, class of 1945, Queen's University Faculty of Medicine, Kingston, Ont.

The Schering award competition has been offered annually by the Schering Corporation for the purpose of stimulating a current interest in endocrinology among undergraduate medical students. It is sponsored and administered by a special committee of the Association of Interns and Medical Students.

Nutrition Grants.—Grants of $127,750 for research projects in nutrition were approved at the recent annual meeting of the board of trustees of the Nutrition Foundation in Minneapolis. Since its organization by food and related manufacturers in 1942 the foundation has made appropriations of $654,700 to support ninety-five separate research projects in American universities. Total contributions of $1,524,500 have been made to carry on the work of the nutrition foundation by fifty food and related manufacturers. Fourteen of the recently approved grants are for the extension of studies that have already been started by the foundation and have yielded results that have made it seem wise to extend the work from two to three years. New grants included one to Harvard University, Cambridge, Mass., for research in community nutrition, one of a series of similar studies to be initiated in different parts of the country to obtain information correlating nutrition and health. Other new grants are:

University of Chicago, Chicago, the iron requirement of the adolescent girl.

University of Southern California, Los Angeles, the intermediary metabolism of carotene.

Duke University, Durham, N. C., nature of the ascending paralysis produced in dogs on a B complex deficient diet and responding to biotin therapy.

Meharry Medical College, Nashville, Tenn., studies on pantothenic acid.

FOREIGN

Society News.—Dr. Andrew Fergus Hewat was reelected president of the Royal College of Physicians of Edinburgh recently. Drs. Lewis H. F. Thatcher, Alexander Ninian Bruce, David M. Lyon, William D. D. Small, William A. Alexander and David K. Henderson were elected to form the council for the ensuing year, and Dr. Lyon was nominated vice president.

American Scientists Aid Egyptians. — Dr. Maurice L. Tainter, director of research, and Chester M. Suter, Ph.D., director of chemical research of the Winthrop Chemical Company, Inc., Rensselaer, N. Y., and New York City, have arrived in Cairo to assist in new research on tropical diseases on invitation of the Egyptian government. The two American scientists will spend several months abroad investigating malaria, schistosomiasis, and a liver infestation and trachoma. As official guests of the Egyptian government, Drs. Tainter and Suter will join Egyptian scientists and medical men in collaborative efforts looking toward the development of clinical and laboratory facilities for a systematic and long range study of tropical diseases. Dr. Tainter has been associated with Winthrop since May 1943, having previously been professor of pharmacology, Stanford University School of Medicine, San Francisco. Prior to his association with Winthrop in October 1942 Dr. Suter was professor of organic chemistry at Northwestern University, Evanston, Ill., and chairman of its department of chemistry.

Artificial Tropical Climate Aids Rheumatic Fever.—About 20 patients have been treated with good results in a special "tropical ward" at the University Hospital of Lund in South Sweden. The ward is known as the climatological laboratory and was established about three years ago at the suggestion of Dr. Gunnar O. Edström. It has double walls and quadruple windows, and all visitors must pass some time in a "sluice" so as not to carry cold and humid air into the ward. The temperature is constantly at 32 C. (89.6 F.) and the relative moisture is not permitted to rise above 50 per cent, while the average figure is 35 per cent. The climate thus produced corresponds to that of Puerto Rico, although it is slightly hotter and drier. The complicated equipment required to keep the climate at a constant level has been donated by the Swedish air conditioning specialists A/B Svenska Fläktfabriken, Stockholm. The patients of Dr. Edström spend about three months in the ward. Sometimes their state improves very rapidly, but in other cases it takes weeks before any real recovery is perceptible. As there are only 2 beds in the ward, the number of patients that can be treated is necessarily small. Dr. Edström hopes, however, that in the future entire hospitals will be constructed for this treatment.

Deaths in Other Countries

Dr. Henry Briggs, for twenty-three years professor of midwifery and gynecology, University of Liverpool, and emeritus professor from 1921, died Nov. 22, 1944, at Hoylake, aged 88. ——**Sir Joseph Arthur Arkwright,** associated with the Lister Institute since 1905 and a member of the Royal Society, died Nov. 22, 1944.——**Dr. Bernard Cuneo,** prominent surgeon, died in Paris Dec. 11, 1944, aged 71.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 23, 1944.

No Increase of Mental Breakdown Due to War

In spite of the bombing of this country from the air with considerable destruction of property and loss of life in the five years of war, there is no evidence of any increase in serious cases of mental breakdown. This summary of the effect of the war on mental health is given in the thirtieth annual report of the Board of Control, the official body which controls mental hospitals. The board points out that although admissions to mental hospitals do not by themselves give a complete picture of the incidence of psychoses and neuropsychoses they do indicate the general trend. Even in blitz areas, the report states, "there are relatively few cases in which the mental breakdown can be attributed in any degree to the effects of war and more particularly of air raids. In those cases in which the breakdown appears to have been caused or accelerated by air raids it is generally found that the past history of the patients suggests that they might have developed mental trouble in any event, though possibly at a later date." The board mentions that a neurosis survey recently carried out by the Ministry of Health did not show any alarming increase in neuroses, particularly when allowance is made for the fact that the war has forced into industry, often in unfamiliar and trying conditions, many who previously led sheltered lives and whose breakdown under the unaccustomed strain might have been regarded as inevitable. "Looking at the situation as a whole," says the board, "we feel that it may fairly be claimed that the war has demonstrated the mental stability of the nation." At the end of 1943 the number of persons suffering from mental disorder reported under care in England and Wales was 147,557 (63,054 men and 84,503 women), a slight decrease from the year before.

Psychotherapy in Social Clubs for Patients

A remarkable new development in psychotherapy has taken place recently. It is a form of rehabilitation that is being used for patients in mental hospitals and outpatients attending psychiatric clinics. This is the institution of self-governed social clubs as part of a bigger scheme of group psychotherapy. E. B. Strauss of the department of psychologic medicine at St. Bartholomew's Hospital, Rolf Ström-Olsen of the Russell Hospital and J. Bierer of the Military Psychiatric Hospital state (*Brit. M. J.* **2**:861, 1944) that the clubs have been tried for the past four years at Runwell Hospital and for two years in connection with the outpatient departments of St. Bartholomew's and Guy's hospitals and have given encouraging results. Some patients are placed in mental hospitals because they are a danger to themselves or to society. The longer they stay the less normal their lives become, it is pointed out, and this may make them worse. The social club is a successful way of breaking, or even preventing, this vicious circle. It is a successful antidote to the stigma that tells so heavily against the patient both before and after discharge from a mental hospital. It helps remove the dividing line between him and normal persons and gives him a chance to use initiative and shoulder responsibility. The number of patients who find it difficult to adapt themselves socially is overwhelming. The social club has proved to be one of the easiest ways to overcome this difficulty, the authors declare. The symptoms so far combated through the clubs are shyness and loneliness, general and social inferiority feelings, sexual maladjustment, lack of incentive and aim in life, inability to cooperate with others, anxiety and phobias, parental domination, acute disappointment and psychologic effects of physical defects.

Under war conditions the clubs meet once a week. They are run on democratic lines, a new committee being elected every three months. The chief officers are the chairman, vice chairman, secretary and organizers for games, sports, refreshments, intellectual pursuits and other activities. The officers are elected for this short term so that as many people as possible may be given responsibility. The programs consist of lectures, debates and entertainments such as games, sports, dancing lessons and dancing, whist drives, parlor games and community singing. The doctor and his assistants attend the meetings as ordinary members, but it is important that they should work behind the scenes. The social clubs are not a form of entertainment, it is emphasized, but are part of a scheme of therapy.

The United Nations Relief and Rehabilitation Administration

The European regional office of UNRRA has recruited a number of experts in public health for its work in the liberated countries of Europe and has held meetings with physicians from these countries to discuss their needs. An epidemiologic bureau has been set up, to which all countries will send information about epidemics and from which information will be distributed to all those who should be informed. An emergency unit with drugs and surgical equipment to meet the requirements of 100,000 people for one month has been formed. The unit also includes one hospital of 200 beds with an operating theater and five 40 bed hospitals. A special department will deal with displaced persons, of whom there are several millions, who want to get back to their own countries as soon as possible. UNRRA has a great responsibility with regard to the supply and distribution of food to the devastated regions. In countries in which the condition is serious they propose to have at least one nutritionist to investigate; he will have a team containing a dietitian and a biochemist.

In London Dr. Andrew Topping has assumed office as director of the health division of the European regional office. Dr. Wilbur A. Sawyer, director of health at the UNRRA headquarters in Washington, arrived in London in June to be nearer the center of operations. In London four medical officers have been appointed (two British, one French and one Dutch) in addition to two deputy directors, Dr. N. M. Goodman, British, and Dr. D. A. Reekie, American. In all the health work of UNRRA the overriding principle is to reestablish national and local health and medical services so that they can deal with their own problems at the earliest possible moment, but help will be provided in the period of transition.

Child Immigration into Australia

Australia has the same concern as European nations about her future population and has expressed a desire for more immigration, which, in any numbers, seems rather hopeless under present conditions. She has now planned child immigration. The cabinet has approved a plan to bring in an average of 17,000 children annually in age groups of 6 to 12 years for aliens and 6 to 14 for British children. Because of legal difficulties it is not proposed to plan for the introduction of child migrants by private adoption, but this will not prejudice adoption in approved cases. It is proposed to arrange with bodies such as UNRRA and the British and other governments to select suitable orphans and other children. The proposal is part of a larger immigration scheme, which the Australian high commissioner in London is discussing with the British and other governments, to bring acceptable adult immigrants from all available sources after the war. The Australian government is not in favor of the proposal to establish large groups of foreign nationals at any one place. In the sugar growing country on the north coast of Queensland, for example, there is an Italian colony which has its own schools and prints its own newspapers. This

experience has shown the undesirability of foreign settlements which do not mix with the Australian community. Australia will welcome people of all nationalities but wants them to learn English and become assimilated as quickly as possible.

The Expenditure on Nostrums

At the representative meeting of the British Medical Association Dr. J. Phillips moved a resolution which was unanimously agreed to: that the education of the public on the meretricious claims of "patent" foods, drinks and medicines should be intensified immediately. He said that $100,000,000 a year was spent on various nostrums. Thus when government control of the use of paper has reduced the advertising pages of medical journals and at the same time greatly increased the cost of advertising space, book advertisements cease while nostrum advertisements flourish, Dr. Phillips pointed out.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Dec. 5, 1944.

Diabetes in Brazilian Cities

Dr. Fabio C. Nunes has recently studied the incidence of diabetes in eighteen of the largest cities of Brazil, particularly Rio de Janeiro. As statistics are scarce and incomplete, Dr. Nunes's paper deals primarily with deaths from the disease. In the Brazilian cities diabetes is rated as a disease of relatively little importance in comparison with tuberculosis, with syphilis, and with the diseases of the digestive system as far as the total number of deaths is considered. Study of the mortality returns of those cities for the years 1934 to 1942 show that, for the whole nine year period, diabetes has been the cause of 0.47 per cent of all deaths, the percentage having a statistically significant increase for the three periods 1934-1936, 1937-1939 and 1940-1942: 0.36, 0.44 and 0.58 respectively. For the city of Rio de Janeiro this corresponds to 455, 623 and 656 deaths from diabetes in the three periods. For all eighteen cities, aggregating at the present time a population of 5,600,000, or about 13 per cent of the population of Brazil, these figures correspond to annual death rates of 6.6, 8.0 and 9.7 per hundred thousand of population for each of the three periods included in the study. Shown in this form, the prevalence of the disease also has a significant increasing trend, as the average annual death rate for the eighteen cities is 8.8 per hundred thousand of population for the whole period included in the study. Only the cities of Porto Alegre, São Paulo and Rio de Janeiro show, for the nine years as a whole, an average death rate from diabetes of 10 or more per hundred thousand of population (10.0, 11.2 and 13.6 respectively). For the sake of comparison it should be pointed out that the annual death rate from diabetes in the large cities of the United States is at the present time about 25 or 30 per hundred thousand of population.

For the city of Rio de Janeiro in particular, for which the statistical data are more complete, Dr. Nunes's paper shows that the deaths from diabetes for the years 1934 to 1942 represented 0.67 per cent of the total of deaths from all causes. For the years 1942 and 1943 the annual death rate was 12.0 and 12.5 per hundred thousand of population. During the last decade the annual number of deaths from diabetes has increased 45.1 per cent in Rio de Janeiro, an average annual increase of 4.5 per cent. In this city for the whole period 1932-1942, 42.5 per cent of the deaths from diabetes have been in males as against 57.5 per cent in females. But it is interesting to point out that the female percentage rises as the age increases: below 40 years female deaths from diabetes represent 40.7 per cent of the total, in the age group 40-59 years 55.5 per cent, in the age group 60-79 years 61.2 per cent and in the age group 80 years and over 72.1 per cent. Only 8.3 per cent of all deaths from diabetes occur to those under 40, as against 41.4 per cent in the age group 40-59 and 50.3 per cent in the age group 60 years and over. The racial distribution of deaths from diabetes in Rio de Janeiro for the twelve years 1932 to 1943 has been 86.4 per cent for white people and 13.6 per cent for colored.

The Misericordia Hospital

The Misericordia Hospital of Rio de Janeiro is the oldest institution of its kind in Brazil. In 1582, eighty-two years after the discovery of Brazil by the Portuguese admiral Pedro Alvares Cabral, an armada of sixteen ships and 3,000 men, commanded by Baldez, arrived at the port after having been heavily battered for several days by stormy seas. As many members of the crews were wounded and sick, father Anchieta, the great Jesuit to whom Brazil owes so much for his pioneer work in the fields of charity and education, received the men in a large house where they found shelter and treatment. This was the beginning of a hospital that was named after Our Lady of Mercy (Nossa Senhora da Misericordia). Up to 1840 the Misericordia Hospital was a large, private infirmary, old, dark and in part underground. Since then it has been remodeled and enlarged several times, the newest improvements having been completed last year.

The present institution is a private hospital, largely for free patients, which consists of thirty-one wards, with more than 900 beds, and 43 outpatient clinics for all the medical and surgical specialties of present practice. During the year 1943, 8,512 patients were interned in the wards of the Misericordia Hospital, and a total of 123,754 individual visits were registered at the outpatient clinics, where 55,022 dressings were done, 88,625 injections were applied and 1,63. minor operations were performed. For the wards and the clinics the pharmacy furnished 281,308 prescriptions. A great improvement, started two years ago, was the creation of a laboratory for the preparation of parenteral products; the laboratory manufactured 441,776 ampules during the year 1943, resulting in a great saving of money to the institution. The Institute of Physical Therapy is now operating powerful equipment for high voltage roentgen therapy and is using about 50 cg. of radium. One important new feature of the hospital is its center of postgraduate teaching, which has just begun another course on the subject of arterial hypertension under the direction of Dr. Genival Londres, professor of medicine at the Rio de Janeiro School of Medical Sciences. The superintendent of the Misericordia Hospital is Dr. Ary A. Silva and the medical director is Dr. Paulo Cesar de Andrade.

Marriages

LUCIANO E. DE MARCO, Newark, N. J., to Miss Clare Magdalene Enzbrenner of Altoona, Pa., in South Orange, N. J., November 5.

GEORGE A. MICHELSON, San Francisco, to Miss Helen L. Ashford of Charlotte, N. C., at York, S. C., November 11.

JOHN WARREN MANNING 3d, Philadelphia, to Miss Muriel Elizabeth Johnson at Lakewood, N. J., October 15.

KEVIN MICHAEL COSGROVE, St. Johnsbury, Vt., to Miss Joan McGrath of Bronxville, N. Y., December 9.

NICHOLAS AYLWARD KNOX, Woodhaven, N. Y., to Miss Irene Vaughan in Brooklyn, October 21.

CORNELIUS E. GORMAN, Lynchburg, Va., to Miss Elizabeth Skender of Canton, Ill., October 17.

TOM R. ROBERTS, Crowell, Texas, to Miss Laura Mae Hunter in Dallas, November 4.

THOMAS J. NAUGHTON to Miss Elizabeth Roughan McMahon, both of Chicago, November 27.

CHARLES A. BECK to Miss Ruth Brandstetter, both of Chicago, December 10.

Deaths

Lloyd Hiram Ziegler ✠ Wauwatosa, Wis.; University of Minnesota Medical School, Minneapolis, 1921; assistant in psychology at Indiana University from 1914 to 1917; an intern at St. Elizabeths Hospital, Washington, D. C., for the year 1920-1921, when he also was assistant in clinical psychiatry at George Washington University; an officer in the United States Public Health Service Reserve from 1921 to 1923; reconstruction officer and assistant clinical director, Government Hospital number 37, Waukesha, Wis., and assistant in psychiatry at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore, in 1923 and 1924; a fellow in medicine at the Mayo Foundation for the year ended in 1925, when he left to become associate professor in neuropsychiatry at the University of Colorado School of Medicine, Denver, and resident psychiatrist at the Colorado Psychopathic Hospital; became an associate in neurology at the Mayo Clinic in May 1926 and instructor in neurology at the Mayo Foundation, Aug. 17, 1928; became professor of neurology and psychiatry at the Albany Medical College and neurologist and psychiatrist in chief for the Albany Hospital, Albany, N. Y., in 1930; a founder member and member of the board of directors of the American Board of Psychiatry and Neurology, Inc.; member of the American Neurological Association, American Psychiatric Association, Association for Research in Nervous and Mental Diseases, Minnesota Society of Neurology and Psychiatry, Albany County Mental Hygiene Association, New York Psychiatric Society, the Alumni Association of the Mayo Foundation, American Association for the Advancement of Science and the Central Neuropsychiatric Association; in 1931 attended the first International Neurological Congress in Berne, Switzerland, and in 1935 the second congress, which convened in London; lecturer in psychiatry at the University of Illinois College of Medicine, Chicago; in November 1937 became associate director and in April 1942 medical director of the Milwaukee Sanitarium, Wauwatosa; instrumental in organizing the Veterans' rehabilitation clinic in Milwaukee; collapsed and died on the grounds of the Milwaukee Sanitarium January 8, aged 52, of a coronary attack.

William Francis Wild ✠ Jackson Heights, N. Y.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; district health officer, department of health, Williamsburg-Greenpoint Health Center; life member of the American Public Health Association; served as president of the Connecticut Public Health Association and as executive secretary of the Minnesota Public Health Association; at one time served with the American Society for the Control of Cancer and the American Child Health Association; formerly health officer of Bridgeport, Conn., the city of Norfolk, Va., and the counties of Nansemond and Isle of Wight; formerly associated with the Nebraska State Board of Health in Lincoln; died in the Beth Moses Hospital, Brooklyn, November 13, aged 62, of pneumococcic meningitis.

Frank Leander Morse, Somerville, Mass.; Harvard Medical School, Boston, 1894; member of the American Medical Association; medical and sanitary inspector of the Massachusetts Board of Health from 1898 to 1905 and a district health officer from 1909 to 1915; from 1901 until his retirement in 1942 medical inspector for the Somerville Board of Health; formerly in charge of the Somerville Contagious Disease Hospital; discharged from active service in the U. S. Army in 1919 with the rank of lieutenant colonel and was retired from the Officers Reserve Corps in 1935 with the rank of colonel; served on the staffs of the Boston City Hospital and the Somerville Hospital, where he died November 5, aged 73, of carcinoma of the prostate.

Archie Clifford Van Cleve ✠ Portland, Ore.; University of Oregon Medical School, Portland, 1913; also a pharmacist; served during World War I; colonel, medical reserve corps, U. S. Army, not on active duty; formerly member of the state board of health; division surgeon of Associated Oil Company and Texas Oil Company; chief surgeon of Portland Gas and Coke Company; surgeon for Postal Telegraph Company and Mackay Radio; served for eleven years as assistant surgeon to the Union Pacific Railroad Company; for ten years member of the boxing commission of Portland; interned at and member of the staff of St. Vincent's Hospital; on the staff of the Providence Hospital; died November 10, aged 59, of coronary sclerosis.

Thomas Maze Aderhold ✠ El Reno, Okla.; Northwestern University Medical School, Chicago, 1901; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; served for eighteen months as an American Red Cross doctor in the Boer War in South Africa; at one time surgeon at the Zeigler Hospital, Zeigler, Ill.; for many years surgeon and formerly owner of the El Reno Sanitarium; charter member and past president of the El Reno Lions Club and past president of the chamber of commerce; died in a Dallas hospital September 6, aged 72, of myocarditis and arteriosclerosis.

Clyde Lipsey McNeil ✠ Rogers, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; fellow of the American College of Surgeons; councilor of the Tenth District of the Arkansas Medical Society; interned at the Vassar Brothers Hospital in Poughkeepsie, N. Y.; served in the medical corps of the U. S. Army during World War I; a member of the board of directors of the chamber of commerce and of the First Federal Savings and Loan Association; a charter member and past president of the Rogers Kiwanis Club; died November 24, aged 52.

Hughes Dayton ✠ Irvington, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1898; formerly instructor in physical diagnosis at the Cornell University Medical College, New York, and associate attending physician at the New York Hospital and the Hudson River State Hospital, New York; on the staff as consulting physician at the Grasslands Hospital, Valhalla, United Hospital, Port Chester, and the Tarrytown Hospital, Tarrytown, where he died December 3, aged 71, of cerebral hemorrhage due to hypertensive cardiovascular disease.

Ignatz Leo Nascher, Staten Island, N. Y.; University of the City of New York Medical Department, New York, 1885; for nearly twenty years served with the Departments of Public Welfare and Hospitals in the City of New York, serving as chief physician of the latter; formerly special lecturer on geriatrics, Fordham University School of Medicine, and chief of clinic department of internal medicine, Mount Sinai Hospital Dispensary, New York; author of "Geriatrics, the Diseases of Old Age and Their Treatment"; died December 25, aged 81, of anginal syndrome.

Robert Martin Akers, Kermit, W. Va.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1910; twice elected mayor of Kermit; surgeon for the Norfolk and Western Railway for many years; died in Huntington, W. Va., November 24, aged 60, of myocarditis.

Fred Delmar Andrew, Rochester, N. Y.; College of Physicians and Surgeons, New York, 1887; specialist certified by the American Board of Radiology, Inc.; member of the American Medical Association and the American College of Radiology; roentgenologist at the Monroe County Hospital; honorary staff member, Strong Memorial Hospital, where he died December 11, aged 88, of pneumonia.

Scott Carter Applewhite ✠ San Antonio, Texas; Jefferson Medical College of Philadelphia, 1901; on the staffs of the Santa Rosa, Nix, Medical Arts and Medical and Surgical Memorial hospitals; served during World War I; died November 17, aged 68, of acute arteriosclerosis.

Edward S. Beck, Owego, N. Y.; University of Buffalo School of Medicine, 1888; member of the American Medical Association; formerly a pharmacist; past president of the Tioga County Medical Society; served as county coroner for many years; died in the Robert Packer Hospital, Sayre, Pa., November 13, aged 82, of chronic myocarditis (arteriosclerotic).

Alvin Marion Belcher, Auburn, Ky.; University of Tennessee Medical Department, Nashville, 1900; Hospital College of Medicine, Louisville, 1901; died November 19, aged 71, of injuries received in an automobile accident.

Frank Moxon Beresford, Ardmore, Pa.; Marquette University School of Medicine, Milwaukee, 1919; specialist certified by the American Board of Otolaryngology; formerly medical director of the Provident Mutual Life Insurance Company, Philadelphia; served during World War I; at one time lieutenant in the medical corps, U. S. Navy; member of the American Medical Association; died in Spring City October 25, aged 54, of coronary thrombosis.

George W. Booker, Knoxville, Tenn.; Tennessee Medical College, 1901; member of the American Medical Association; for two terms Knox County physician; died November 17, aged 82, of atrophy of the heart muscle.

John R. Brian, St. Francisville, Ill.; Barnes Medical College, St. Louis, 1899; died November 18, aged 74, of coronary thrombosis.

William D. H. Brown, La Grange, Ill.; National Medical University, Chicago, 1902; died in Chicago December 6, aged 86, of multiple lacerations of the right lung with massive hemothorax due to multiple fracture of the ribs as the result of a fall from a porch.

Robert Miller Campbell, Glendale, Calif.; Medical College of Indiana, Indianapolis, 1903; formerly postmaster in La Fayette, Ind., health officer of Tippecanoe County, Ind., and for many years on the board of the Tippecanoe County Tuberculosis Association; died November 11, aged 74, of cerebral hemorrhage.

Charles W. Case, Onsted, Mich.; Medico-Chirurgical College of Philadelphia, 1899; member of the American Medical Association; on the staff of the Bixby Hospital, Adrian; died November 11, aged 65, of carcinoma of the liver.

Walter Chrystie ✠ Bryn Mawr, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; served on the staff of the Bryn Mawr Hospital, where he died October 9, aged 83, of injuries received when struck by an automobile.

Henry Clay Clements, Benton, Ala.; Medical College of Alabama, Mobile, 1899; member of the American Medical Association; died in a Selma hospital October 30, aged 67, of congestive heart disease and chronic myocarditis.

Louis T. Donaldson, Jennings, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; member of the American Medical Association; director of the Jefferson Davis Health Unit; died in the Southern Baptist Hospital, New Orleans, November 4, aged 60, of coronary occlusion.

Robert Morris Dunsmoor, Fontana, Calif.; College of Physicians and Surgeons, Los Angeles, 1913; died November 7, aged 61, of arteriosclerosis.

Louis M. Dusseldorf, Brooklyn; Long Island College Hospital, Brooklyn, 1888; member of the American Medical Association; on the courtesy staff of the Methodist Hospital, where he died November 11, aged 78, of bronchopneumonia, cerebral thrombosis and hypertension.

John Robert Eby, Elko, Nev.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; past president of the Elko County Medical Society; at one time chief of staff, Elko General Hospital, where he died October 27, aged 76, of myocardial infarction.

John Wesley Edwards, Staten Island, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; a captain in the medical corps of the U. S. Army during World War I; for many years an acting assistant surgeon in the U. S. Public Health Service on duty at the U. S. Quarantine Station in Boston; retired in 1936; died September 25, aged 76, of generalized arteriosclerosis.

Charles Wager Fairchild ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1903; on the courtesy staff of the Tarrytown Hospital, Tarrytown; on the staff of the Manhattan State Hospital; died in St. Vincent's Hospital November 15, aged 65, of hypertensive cardiovascular disease.

John David Fakes, Hickman, Ky.; Barnes Medical College, St. Louis, 1899; Hospital College of Medicine, Louisville, Ky., 1900; died in the Keys-Houston Clinic Hospital, Murray, November 11, aged 75, of cirrhosis of the liver.

Thomas Enoch Ferrell, Mountain View, Mo.; Barnes Medical College, St. Louis, 1895; member of the American Medical Association; died in St. John's Hospital, Springfield, November 13, aged 74, of coronary occlusion.

Hamilton S. Gillespie, Sioux City, Iowa; Omaha (Neb.) Medical College, 1898; member of the American Medical Association; past president of the Woodbury County Medical Society; died in St. Joseph Hospital November 14, aged 69, of coronary thrombosis.

James Frank Gullette, Austin, Texas; Memphis (Tenn.) Medical College, 1904; died in an Austin hospital September 24, aged 65, of coronary thrombosis.

C. I. Harris, Morganfield, Ky.; Hospital College of Medicine, Louisville, 1904; past president of the Union County Medical Society; on the staff of the Union County Hospital; died November 17, aged 68, of heart disease.

Daniel Webster Henry, Endicott, Wash.; Jefferson Medical College of Philadelphia, 1905; member of the American Medical Association; died November 10, aged 65, of coronary thrombosis.

William E. Hervey, West Alexander, Pa.; Medical College of Ohio, Cincinnati, 1882; at one time president of the chamber of commerce in Pittsburgh; died in the Ohio Valley General Hospital, Wheeling, W. Va., November 6, aged 89, of fracture of the neck of the femur and senility.

Jacob Oliver Hoffman, Harrisonburg, Va.; University of Michigan Homeopathic Medical School, Ann Arbor, 1883; died September 4, aged 84, of acute prostatitis.

Brooke Ignatius Jamison, Emmitsburg, Md.; University of Maryland School of Medicine, Baltimore, 1905; died November 8, aged 62, of injuries received when struck by an automobile.

James Keho, Tacoma, Wash.; State University of Iowa College of Medicine, Iowa City, 1884; died November 3, aged 86, of cerebral hemorrhage.

Otto Kiene ✠ Concordia, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1904; died in a Kansas City hospital November 6, aged 66, of pulmonary infarct.

Patrick Joseph Kingsley, Milton, Mass. (licensed in Massachusetts in 1899); aged 74, died September 25, of hemorrhage due to gastric ulcer.

George William Kittelberger ✠ Bowie, Texas; St. Louis University School of Medicine, 1932; member of the Missouri State Medical Association; served an internship at the Bethesda Hospital in St. Louis, St. Luke's Hospital and Shriners' Hospital for Crippled Children in Spokane, Wash.; formerly on the staff of the Eastern State Custodial School in Medical Lake, Wash.; died November 1, aged 44, of brain tumor.

James Henry Lacey, Denver; St. Louis Medical College, 1883; Jefferson Medical College of Philadelphia, 1893; for many years surgeon for the Southern Railway; died in the Denver General Hospital October 31, aged 87, of hypostatic pneumonia, following a fracture of the right femur received in a fall.

Jonathan Morias Larson, Hollywood, Fla.; National Medical University, Chicago, 1905; died November 6, aged 71, of postoperative shock following a cholecystectomy.

Florance Patrick Leehey, Oelwein, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the American Medical Association; for fifteen years city physician; served during World War I; head of the Selective Service Board; on the staff of the Mercy Hospital; died November 6, aged 69, of heart disease.

Charles Robert Lewis ✠ Akron, Ohio; Ohio State University College of Medicine, Columbus, 1916; on the staffs of the City Hospital, St. Thomas Hospital and the Peoples Hospital, where he died November 6, aged 62, of pneumonia.

Robert Kirkpatrick Macklin, Pasadena, Calif.; Northwestern University Medical School, Chicago, 1911; served in the medical corps of the U. S. Army during World War I; died November 15, aged 59, of intracranial pressure.

Ira Newton Martin, Portsmouth, Ohio; Eclectic Medical Institute, Cincinnati, 1906; past president of the Hempstead Academy of Medicine; died October 23, aged 72, of cerebral hemorrhage.

Sidney Simon Mayer Jr., Portland, Ore.; University of Oregon Medical School, Portland, 1936; member of the American Medical Association; clinical associate in medicine at his alma mater; served an internship and residency at Johns Hopkins Hospital, Baltimore; died November 2, aged 33, following a thyroidectomy.

Martin McAulay ✠ Monterey, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1904; past president of the Monterey County Medical Society; served during World War I; formerly physician and owner of the El Adobe Hospital; served on the staffs of the Peninsula Community Hospital, Carmel, and the Monterey Hospital; died November 3, aged 69, of carcinoma of the mouth.

Joseph Fennell McKee ✠ Chicago; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1894; on the staffs of Anne's Hospital and the Lutheran Deaconess Hospital, where he died September 28, aged 76, of uremia.

Elmer L. Mullin, Manlius, Ill.; Illinois Medical College, Chicago, 1905; on the staff of the Julia Rackley Perry Memorial Hospital, Princeton; died in the Presbyterian Hospital, Chicago, November 12, aged 69, of carcinoma of the bladder.

William S. Napper, Lebanon Junction, Ky.; University of Louisville Medical Department, 1891; died October 26, aged 84, of chronic nephritis.

John Francis Nooe ✠ Boerne, Texas; University of Texas School of Medicine, Galveston, 1898; served as a captain in the medical corps of the U. S. Army during World War I; died in San Antonio October 30, aged 71, of coronary thrombosis.

Oscar C. Pabst, Tyler, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1895; member of the American Medical Association; died suddenly October 14, aged 78, of coronary thrombosis.

Benjamin Hamilton Parrish, Cloverport, Ky.; University of Louisville School of Medicine, Louisville, 1913; member of the American Medical Association; died October 13, aged 58, of cerebral hemorrhage.

George F. Plotner, West Mansfield, Ohio; Starling Medical College, Columbus, 1888; died in Cincinnati November 4, aged 85, of cardiovascular renal disease.

Nathan Sylvester Rawdin ✠ New York; Baltimore University School of Medicine, 1900; died October 31, aged 69, of coronary thrombosis.

John King Rector, Washington, D. C.; Howard University College of Medicine, Washington, 1921; served as assistant medical director of the Freedmen's Hospital; died in the Glenn Dale Sanatorium, Glenn Dale, Md., November 9, aged 49, of pulmonary tuberculosis.

Guy Cyrus Rich, Los Angeles; Jefferson Medical College of Philadelphia, 1885; also a dentist; formerly practiced medicine in Sioux City, Iowa; died October 22, aged 83, of carcinoma of the throat.

Edward Karl Richard, Olean, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1918; member of the American Medical Association; served as instructor in medicine at the University of Rochester School of Medicine and Dentistry; formerly on the staffs of the Genesee and Strong Memorial hospitals, Rochester; served as medical superintendent of the Rocky Crest Sanatorium; on the staffs of the Olean General and St. Francis hospitals and the Mountain Clinic; died November 15, aged 51, of coronary occlusion.

John N. Rock ✠ Milwaukee; Rush Medical College, Chicago, 1891; died November 26, aged 79, of coronary arteriosclerosis.

Clarence A. Rogers, Bluefield, W. Va.; Leonard Medical School, Raleigh, N. C., 1912; owner of the Providence Hospital; died November 22, aged 59, of cerebral hemorrhage.

Paul Corcoran Ryan ✠ Pittsburgh; University of Michigan Medical School, Ann Arbor, 1936; served an internship at the Harper Hospital in Detroit and a residency in ophthalmology at the University Hospitals in Iowa City; member of the staffs of St. John's, Shadyside and the Eye, Ear, Nose and Throat hospitals; died November 13, aged 37, of rheumatic heart disease and mitral stenosis.

Henry Fenno Sawtelle ✠ Arroyo Grande, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; U. S. Army Medical School, 1926; served during World War I; formerly a major in the medical corps of the U. S. Army; at one time medical examiner for the pension office in Washington, D. C., where he later became chief sanitary inspector for the health department and assistant health officer; died December 2, aged 66.

Clarke Wesley Shepherd, Spring Hill, W. Va.; Baltimore University School of Medicine, 1891; died in the Memorial Hospital, Huntington, December 18, aged 80, of uremia, myocardial failure and pulmonary edema.

Kathryn Forbich Thumm Smith, Casper, Wyo.; Jenner Medical College, Chicago, 1914; member of the American Medical Association; died in Cheyenne November 29, aged 71, of uremia.

Philip McClellan Steckman ✠ Plattsburg, Mo.; Jefferson Medical College of Philadelphia, 1889; died in a hospital in St. Joseph November 11, aged 79, of esophageal hemorrhage.

Glenn Morris Steele, Tacoma, Wash.; the Hahnemann Medical College and Hospital, Chicago, 1903; member of the American Medical Association; died December 3, aged 66, of carcinoma of the stomach.

Lawrence Henry Stepp, Mars, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the American Medical Association; past president of the board of health and Kiwanis Club of Mars; died November 26, aged 77, of angina pectoris.

Archibald William Thompson ✠ Buffalo; University of Buffalo School of Medicine, 1916; member of the Radiological Society of North America, Inc.; specialist certified by the American Board of Radiology, Inc.; served during World War I; on the staffs of the Lafayette General and Our Lady of Victory hospitals; died in Eden, N. Y., October 22, aged 53, of carcinoma.

Francis Elmer Wilhelm ✠ Kansas City, Kan.; University of Kansas School of Medicine, 1906; an Affiliate Fellow of the American Medical Association; member of the Missouri State Medical Association; served on the staffs of St. Luke's and St. Joseph hospitals, Kansas City, Mo.; died September 26, aged 71, of rheumatic heart disease and probably heart block.

DIED WHILE IN MILITARY SERVICE

Raymond Leo Abraham, Chicago; Loyola University School of Medicine, Chicago, 1933; member of the American Medical Association; served an internship at St. Elizabeth Hospital; commissioned a first lieutenant in the medical corps, Army of the United States, on June 3, 1942; later promoted to captain; died at the Charleston port of embarkation, South Carolina, Sept. 27, 1944, aged 38, of coronary thrombosis.

William Etheridge Dierking, Passed Assistant Surgeon, Lieutenant, U. S. Navy, Louisville, Ky.; University School of Louisville School of Medicine, 1939; member of the American Medical Association; served an internship at St. Elizabeth Hospital, Covington, and a residency in pediatrics at the Louisville City Hospital; commissioned a lieutenant (jg), medical corps, U. S. Navy, on April 14, 1942; promoted to lieutenant on Oct. 1, 1942; died Aug. 31, 1944, aged 31, of acute poisoning, substance unknown.

Richard Franklin Halford, Augusta, Ga.; University of Georgia School of Medicine, Augusta, 1940; served an internship at the James M. Jackson Memorial Hospital, Miami, Fla.; commissioned a first lieutenant in the medical corps of the Army of the United States on Aug. 7, 1941; later promoted to captain; flight surgeon during the first invasion of North Africa and on other battle fronts; died in the North African theater of operation August 17, 1944, aged 28, in an airplane crash.

Robert McCurdy Kennedy, Elgin, Ill.; Northwestern University Medical School, Chicago, 1938; diplomate of the National Board of Medical Examiners; served an internship at City of Detroit Receiving Hospital, Detroit; formerly a medical missionary to India; commissioned a lieutenant (jg) in the medical corps, U. S. Naval Reserve, on Oct. 27, 1943; drowned at sea when the ship sank in a hurricane in the Atlantic area Sept. 13, 1944, aged 33.

Gayle Harold Laymon, St. Joseph, Ill.; Chicago Medical School, 1934; member of the American Medical Association; served an internship at the South Shore Hospital, Chicago; commissioned a first lieutenant in the medical corps, Army of the United States, on Dec. 28, 1942; began active duty on Jan. 13, 1943; later promoted to captain; died in Kodiak, Alaska, April 9, 1944, aged 42, as the result of cerebrovascular disease.

Thomas Joseph Lennon ✠ San Francisco; University of California Medical School, San Francisco, 1924; formerly an intern at the San Francisco Hospital; at one time resident physician at St. Mary's Hospital, where he was chief of medicine and member of the executive committee; served as clinical instructor in medicine at his alma mater; commissioned a captain in the medical corps, Army of the United States, on Jan. 15, 1941; began active duty on May 15, 1942; promoted to major; served overseas with the 30th General Hospital; died in the Hammond General Hospital, Modesto, Nov. 13, 1944, aged 48, of carcinoma of the lung.

John Anthony Mastromarino, Revere, Mass.; Middlesex University School of Medicine, Waltham, 1940; served an internship at St. Luke's Hospital in Newburgh, N. Y., and a residency at the Cornwall Hospital, Cornwall, N. Y.; commissioned a first lieutenant in the medical corps, Army of the United States, on May 17, 1943; died in the Southwest Pacific area Oct. 26, 1944, aged 29, of yellow atrophy of the liver.

Wesley Nestor Warvi, Lead, S. D.; University of Wisconsin Medical School, Madison, 1939; served an internship at the University of Kansas Hospitals, Kansas City, Kan., and a residency at the Collis P. Huntington Memorial Hospital in Boston and the Cincinnati General Hospital in Cincinnati; commissioned a first lieutenant in the medical corps, Army of the United States, on Dec. 30, 1943; killed in an automobile accident near Ogallala, Neb., July 30, 1944, aged 34.

Jonathan Wooden Williamson, Atlanta, Ga.; Emory University School of Medicine, Atlanta, 1939; associate member of the Medical Association of Georgia; served an internship at the Grady Hospital; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on July 25, 1941; later commissioned a lieutenant; died April 27, 1943, aged 28.

Correspondence

APPRAISAL OF NEW DRUGS

To the Editor:—Introduction of new chemical agents for clinical use involves a serious responsibility and requires the utmost care in skilful execution and interpretation of laboratory findings and sound judgment in evaluation of clinical results, as emphasized years ago (THE JOURNAL, Nov. 23, 1929, p. 1632). Both laboratory and clinical studies must conform to the best accepted standards for the specific types of experiments involved. The desirability of setting up a universally standard scheme of appraisal, such as that authorized "as a pattern" by the Council on Pharmacy and Chemistry in THE JOURNAL, Dec. 9, 1944, page 958, may nevertheless be questioned. Aside from differences of opinion regarding the most valid technics for particular phases of a standardized appraisal, it is doubted that standardization of the experimental background for new drugs should be as detailed as that recommended.

Ultimately the value of any chemical agent in treatment depends on the relation between its therapeutic hazard and the disease hazard. Neither of these factors can be satisfactorily quantified. The therapeutic hazard may be established only roughly from laboratory studies or even preliminary clinical trials and may be changed appreciably by variations in the disease process. The disease hazard often varies during the course of the process and also with many factors whose evaluation involves the art of medicine rather than judgment based on quantitative data. Final evaluation of new drugs always depends on the trained senses of many experienced clinicians after release of the agent for general use, and only indirectly on the preliminary clinical tests and laboratory findings. The problems involved in the introduction of new drugs then resolve themselves into (*a*) recognition of appreciable therapeutic efficacy and (*b*) recognition of toxic effects. Assuming reasonably favorable laboratory reports of efficacy, the significant data in this regard must come from the preliminary clinical trials. On the other hand, the toxic hazards should be so well understood from laboratory studies that no human material is sacrificed in preliminary clinical experiments.

Laboratory experiments should therefore be directed not toward extensive pharmacodynamic tests with toxicity tests secondary but toward exhaustive study of toxic hazards with integration of the information so gained into the pharmacodynamic matrix. The proposed standardized appraisal does not stress the necessity of using toward this end the multitudinous phases of study recommended. For example, it is as important to study the toxic hazard in disease states as it is to determine the efficacy of the drug in these conditions, and the pharmacodynamic knowledge would not suffer by inclusion of studies with a drug level in the toxic range. Studies of absorption, distribution and fate of new agents also should be carried out with toxic as well as therapeutic doses.

The proposed evaluation of toxicity in the standardized appraisal could well be more flexible. More useful information can be obtained, for example, by a relatively casual study of effects of central nervous system drugs on a single species among the primates or other large mammals than by any amount of work on batrachians or small rodents. Enough species should certainly be included to yield a clear picture of the degree of species variability, but the species chosen and their number should be selected intelligently to match the properties of the drug. Thorough study of a few appropriate species is preferable to an extensive, less accurate study.

The use of a therapeutic index defined as ED_{50}/LD_{50} is of value only in rough comparison of compounds in the earlier stages of laboratory development. Abuse of this ratio to denote relative safety of compounds used clinically is not unknown. The clinician is interested primarily in the margin of safety, which can also be expressed in the form of a ratio as the certain safety factor (LD_1/ED_{99}).

Especially for drugs likely to be used repeatedly, estimations of subacute and chronic toxicities are essential. However, insistence on studying effects for the entire life span of "at least one species" seems pointless; we are not aware of any drug for which additional information regarding any factor except life span itself could be obtained with this technic which could not be obtained equally well from properly designed experiments covering a shorter period, such as six to nine months for mice. Estimations of acute or subacute toxicity in very young and senile animals may be necessary for certain drug types, but the indirect gathering of this information by conforming to a standardized appraisal recommending treatment throughout the life span can but result in delay in introduction of possibly useful agents.

Criticism of a standard appraisal scheme suitable for all types of drugs should not be construed as a criticism of standardization of study of specific types. The proposed detailed plan is stated to be applicable to evaluation of "really new drugs," and short cuts in the procedures are condoned for "a few isolated cases" only. Most new agents introduced recently, such as the barbiturates, phenalkylamines and antispasmodics, have been designed as modifications of recognized useful agents. Comparative studies of efficacy and toxic hazards of these should be intensive in those phases indicated by past experience with the type compounds. In each group of compounds, however, only a fraction of the procedures noted in the standard appraisal need be carried out. For studies of this kind, general agreement as to the validity of the appropriate methods of study would be helpful.

Basically there is no moral difference between deaths caused by the useless withholding of new superior agents and deaths caused by premature use of untested agents. Any aids to evaluation of new compounds must recognize this, and we do not believe that the aim of fostering therapeutic research for the betterment of pharmacotherapy is served well by overly critical standards for preliminary study of new agents.

CHAUNCEY D. LEAKE, PH.D.
RAYMOND GREGORY, M.D.
PAUL L. EWING, PH.D.
GEORGE A. EMERSON, PH.D.
University of Texas Medical Branch,
Galveston, Texas.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and board of examiners in the basic sciences were published in THE JOURNAL, January 20, page 184.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Part I. Various centers, Feb. 19-21. Part III. Various centers, June. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: New York, June 8-9. Final date for filing application is March 12. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Spring. Final date for filing application is Feb. 1. Sec., Dr. Paul C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 3. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 5-8. Final date for filing application is March 1. Chicago, Oct. 3-6. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, May. Final date for filing application is Feb. 28. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington 6, D. C.

AMERICAN BOARD OF RADIOLOGY: *Oral.* New York, June 3. Final date for filing application is May 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, Feb. 19-22. Sec., Dr. G. J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Annals of Internal Medicine, Lancaster, Pa.

21:565-746 (Oct.) 1944

*Roles of Medicine and Surgery in Management of Bronchiectasis. J. Alexander.—p. 565.
*Sternal Puncture as Practical Diagnostic Procedure. S. Propp and J. L. Schwind.—p. 580.
*Kala Azar: Review of Its Incidence and Epidemiology in China and Clinical Observations on 585 Cases. F. G. Scovel.—p. 607.
Periarteritis Nodosa: Present Knowledge of Disease. M. McCall and J. W. Pennock.—p. 628.
Periarteritis Nodosa, with Report of 3 Cases Diagnosed During Life. S. Solomon, M. Kasich and N. Kiven.—p. 638.
Electrocardiographic Study of Cardiac Aging Based on Records at Rest and After Exercise. M. Mazer and J. A. Reisinger.—p. 645.
Leukocytosis and Sympatheticoadrenal System. F. B. Clare, C. H. Cress and E. Gellhorn.—p. 653.
Extrarenal Uremia: Report of 2 Cases Due to Pyloric Obstruction. E. J. O'Donovan and F. D. Murphy.—p. 662.

Medical and Surgical Treatment in Bronchiectasis.—According to Alexander the safety of pulmonary lobectomy has solved the problem of treatment for approximately half the bronchiectasis patients; the other half, for various reasons (especially because of extensive bilateral lesions), are not suitable for the operation. Nonsurgical methods of treatment, if properly and faithfully carried out, can be made effective in greatly alleviating the distressing symptoms of the disease in a large majority of patients in spite of the pessimistic opinions about the value of nonsurgical treatment that have been expressed recently.

Sternal Puncture as Diagnostic Procedure.—Propp and Schwind studied 140 cases of diseases of the blood and hemopoietic system and cases in which the possibility of such disorders entered into the differential diagnosis. Twenty punctures on patients without hematologic disorders and ranging in age from 17 to 41 years served as normal standards. Sternal puncture is an extremely valuable and practical diagnostic method. Elaborate technics of handling and studying the marrow samples, however valuable from a research standpoint, are unnecessary for clinical use. Indicated punctures gave information of clinical value in 65 per cent of the cases. Diagnosis was established by puncture in 16.2 per cent of the 74 indicated cases. Sternal puncture cannot be substituted for thorough clinical investigation. The more thorough the work-up of the patient, the easier and more valuable is the interpretation of the puncture. Most diseases do not show specific changes in the marrow from which a definite diagnosis can be made, but much valuable information can be obtained which is of aid in the differential diagnosis and subsequent handling of the patient. Diagnoses should be made only from specific myelograms. A negative result does not absolutely preclude the presence of a given disease because of the possibility of not having secured a representative sample of marrow and of atypical variations in the pathologic lesions of the disease. Punctures which yield no marrow cells on aspiration should be followed by a trephine biopsy, if the diagnosis can be reached in no other way and no contraindication is present.

Kala Azar in China.—Kala azar is endemic throughout the whole of China north of the Yangtze River. It is most common below the age of 15, although in the series of 585 cases reported by Scovel there was an unusually large number of patients from 15 to 40 years of age. Most of the patients are from the farmer or coolie class living in small villages. Epidemiologic studies point to the sandfly as the vector and the dog as the reservoir host for the parasites. This is borne out by the ability of Phlebotomus chinensis to receive and retain the parasites even in the absence of blood, by the growth of flagellates in the intestine of the fly and their forward extension into the proboscis, by the apparent identical nature of Leishmania canis and donovani as revealed by similar complement fixation reactions and by direct transmission of the disease to man through the bite of infected flies. The most important physical signs are an enlarged spleen, a low grade fever with tachycardia, anemia, most pronounced in children, and a leukopenia, which is more severe in the older and more chronic cases. Sternal marrow smears were positive in 81 per cent of 557 examinations and constituted the most valuable means of diagnosis. Complications were more frequent in older patients with a protracted history. The most common of these were pneumonia, amebic and bacillary dysentery, bronchitis and noma. There were thirty deaths in 585 patients, a mortality rate of 5.1 per cent. Only 3 of these succumbed to kala azar alone, the remaining having complications, mostly pneumonia. Six relapses occurred. Prophylaxis should consist in eradication of sandfly breeding places, removal of infected dogs and segregation of patients. Untreated patients gradually lose weight and strength until their debilitated condition makes them subject to some complication, which is usually the cause of death. Kala azar responds readily to treatment with antimony. The author used pentavalent antimony compounds (neostibosan and neostam), giving approximately 1 Gm. to 33 pounds (15 Kg.) of body weight in nine to sixteen intravenous injections of a 0.5 per cent solution. Few reactions occurred with neostibosan. Gastrointestinal upsets were common in patients receiving neostam (stibamine glucoside). The parasites disappear more slowly from the bone marrow than from the liver and spleen. Antimony is contraindicated in the presence of jaundice, hepatitis, pneumonia or acute nephritis.

Archives of Pathology, Chicago

38:187-286 (Oct.) 1944

*Pathologic Anatomy of "Atypical Pneumonia, Etiology Undetermined": Acute Interstitial Pneumonitis. A. Golden.—p. 187.
Amyloidosis in Atypical Sites (Cardiac Valves, Larynx). D. M. Spain and R. C. Barrett.—p. 203.
Leiomyoma of Stomach. W. A. Meissner.—p. 207.
Experimental Atherosclerosis: VI. Effects of Various Bile Acids on Cholesterol Levels. S. Member, M. Bruger and E. Oppenheim.—p. 210.
Effect of 3,4-Benzpyrene on Regenerating Epidermis of Mice. M. Silberberg and Ruth Silberberg.—p. 215.
Irritation and Carcinogenesis. I. Berenblum.—p. 233.
Arteriosclerosis. W. C. Hueper.—p. 245.

Pathologic Anatomy of Atypical Pneumonia.—During the years 1940 to 1944 the central pathologic laboratory of the United States Army collected 90 cases of "atypical pneumonia, etiology undetermined," in which postmortem examinations were made. Golden analyzes the morbid anatomic changes in the 42 cases of that series in which case histories and necropsy protocols are reasonably complete and enough tissue was available for an unequivocal estimate of the pathologic process. All of the cases acceptable for this report were cases of acute interstitial pneumonitis, a designation which the author uses in preference to the clinical designation of "atypical pneumonia, etiology undetermined." In a number of instances portions of the lungs at necropsy showed bronchopneumonia and occasionally lobar pneumonia, as well as areas of acute interstitial pneumonitis. The composite description is based on 21 cases in which multiple sections of lung revealed only acute interstitial pneumonitis. The following were the pathologic changes displayed by all cases in common: 1. There was acute bronchiolitis, focally distributed, in which desquamation of the mucosal surfaces occurred early. 2. The lumens of such bronchioles contained pus, mucoid fluid and desquamated epithelial clusters or single cells, sometimes in an advanced stage of disintegration. 3. Bacteria in small numbers and not of uniform type could be demonstrated in the bronchiolar pus in some cases. 4. The bronchioles were dilated, even in cases in which death occurred early in the disease. 5. The walls of such bronchioles were infiltrated chiefly with mononuclear cells, which extended radially into the regional interstitial tissues of the lung, namely the peribronchiolar tissues, the alveolar walls and the pulmonary septums. 6. The alveoli either contained air or were collapsed, and they differed from those involved in bronchopneumonia and lobar pneumonia in being relatively free of polymorphonuclear leuko-

cytic exudate. 7. Such areas failed to reveal micro-organisms on tissue section. 8. With the advent of secondary bacterial invasion the gross and microscopic pictures were altered: in some cases it was possible to discover areas of acute interstitial pneumonitis adjacent to zones of typical bronchopneumonia, lobar pneumonia or pulmonary abscess. The chief lesions were comparable to those of certain other infections, notably of influenzal pneumonia uncomplicated by secondary bacterial infection and of uncomplicated measles pneumonia. There is anatomic evidence indicating that these lesions are caused by one or more viruses.

Archives of Surgery, Chicago

49:213-300 (Oct.) 1944

Fractures About Elbow in Children. H. B. Boyd and A. R. Altenberg. —p. 213.
*Effect of Topical Application of Vitamins and Other Chemicals on Healing of Wounds. R. H. Williams and G. W. Bissell.—p. 225.
Triphalangeal Bifid Thumb: Report of 6 Cases. P. W. Lapidus.—p. 228.
Venous Pressure as Index of Blood Flow in Upper Extremity. G. W. Duncan.—p. 235.
Intravenous Administration of Dextrose in Treatment of Patients with Disease of Biliary Tract. H. A. Zintel, Cecelia Riegel, Rozanne Peters and J. E. Rhoads.—p. 238.
Subarachnoid Analgesia Maintained by the Continuous Drop Method. Julia G. Arrowood and F. E. Foldes.—p. 241.
*Penicillin in Treatment of Chronic Osteomyelitis: Report of 40 Cases. D. G. Anderson, L. G. Howard and C. H. Rammelkamp.—p. 245.
Progress in Orthopedic Surgery for 1943: A Review prepared by an Editorial Board of the American Academy of Orthopaedic Surgeons:
VII. Conditions Involving Elbow, Forearm, Wrist and Hand. W. P. Blount.—p. 258.
VIII. Conditions Involving Knee Joint. R. K. Ghormley.—p. 261.
IX. Fractures. W. G. Stuck, R. B. Raney, J. J. Fahey, D. H. O'Donoghue and H. F. Johnson.—p. 265.
X. Congenital Dislocation of Hip. A. B. Gill.—p. 285.
XI. Conditions Involving the Spine and the Thorax. J. R. Cobb. —p. 287.

Topical Applications in Healing of Wounds.—Williams and Bissell studied the effects of vitamins and various other substances on the acceleration of healing when applied topically to wounds of uniform size in normal rats. The substances studied were vitamins A, C, D and E, thiamine hydrochloride, nicotinic acid, riboflavin, calcium pantothenate, pyridoxine, biotin, hydrosulphosol, biodyne, urea-sulfathiazole ointment, amino acids, adenosine, liver extract, cod liver oil, a "vitamin mixture" and sesame oil. The effect of sulfamerazine used in conjunction with most of these substances was also observed. No definite benefit was derived from the use of any of these substances as judged by frequent observations of the wounds and the microscopic changes.

Penicillin in Chronic Osteomyelitis.—Anderson and his associates report 40 cases of chronic osteomyelitis treated with penicillin. In 25 it has been possible to conduct follow-up observations for a year or longer after completion of the first course of treatment with penicillin. Most of the patients had received intensive therapy with sulfonamide drugs without benefit, and many of them had had recent surgical treatment. Staphylococcus aureus was cultured from material from the local lesion in all but 2 cases. In 31 of the 40 cases only one course of penicillin therapy was given, while in 9 penicillin was given on two separate occasions. All the patients received penicillin by intravenous or intramuscular injections at intervals of three or four hours. A few received a portion of the penicillin by continuous intravenous infusion. The use of penicillin locally without simultaneous parenteral administration has been ineffective. When used in conjunction with systemic therapy, local administration of penicillin may offer certain advantages. Since sequestrums have no blood supply, penicillin from the blood stream reaches bacteria present in sequestrums with difficulty. Osteomyelitic cavities within sclerosed bone, although partially vascularized, present a similar problem, since penicillin will not diffuse into such areas from the blood stream in adequate concentration. Local circulation is also impaired in soft tissue scars and sinus tracts. As a result of these considerations, all sinus tracts and all scar and granulation tissue were excised as far as was possible. Osteomyelitic cavities that were suspected of being the site of active infection were exposed and thoroughly curetted. A window to permit curettage was made in the bone, but the cavities were not saucerized. The surgical procedure made the operated area a relatively closed system, with penicillin reaching it both from the blood stream and through catheters. In this fashion it was possible to maintain a constant high concentration of penicillin at the site where it was most needed. Penicillin, by inhibiting the growth and multiplication of bacteria, will arrest the infection in a high percentage of cases and thus allow healing to take place. In only a small percentage of cases does the use of penicillin fail to produce significant improvement.

Bulletin of the Johns Hopkins Hospital, Baltimore

75:199-250 (Oct.) 1944

Irradiation Pneumonitis: Case. T. O. Alexander.—p. 199.
Studies on Fracture Convalescence: II. Influence of Diet on Post-Traumatic Nitrogen Deficit Exhibited by Fracture Patients. J. E. Howard, Jane Winternitz, William Parson, R. S. Bigham Jr. and Harry Eisenberg.—p. 209.
Type of Neuritis Associated with Malarial Fever. A. M. Harvey.—p. 225.
*Treatment of Primary and Secondary Yaws with Penicillin. R. C. Whitehill and R. Austrian.—p. 232.
*Mumps with Presternal Edema. S. S. Gellis and M. Peters.—p. 241.

Treatment of Yaws with Penicillin.—Whitehill and Austrian direct attention to the fact that recent laboratory and clinical investigations have produced results which suggest strongly the potential value of penicillin in the treatment of diseases caused by spirochetes and closely allied organisms. Patients with yaws treated with penicillin were admitted to the wards of a British colonial service hospital for observation during and after the period of treatment. The total dosage of penicillin employed was set at approximately 500,000 units; 15,000 units was given intramuscularly every four hours day and night for five to six days. The drug solution was made daily by dissolving the dry powder in enough sterile isotonic solution of sodium chloride to produce a concentration of 10,000 units of penicillin per cubic centimeter. Seventeen cases of primary and secondary yaws from which Treponema pertenue was isolated by dark field examination have been treated with penicillin. The drug caused disappearance of Treponema pertenue from the cutaneous lesions within sixteen hours in 16 cases and within forty hours in 1 case. Penicillin therapy brought about complete healing within three weeks of all the cutaneous manifestations of yaws with the exception of one lesion, which failed to epithelize because of local scar formation. During the short period of observation penicillin did not affect significantly the serum Kahn reaction in yaws.

Mumps with Presternal Edema.—Gellis and Peters report observations on 502 patients with mumps admitted to the station hospital at Fort Benning, Georgia, in the spring of 1944. Of these patients 30 exhibited presternal edema. The outbreak involved young army inductees from Southern rural areas and did not appear to be of unusual severity. The onset of the edema was noted on the average of 5.8 days from the appearance of glandular swelling and lasted on the average five days. The lower border of the edema invariably assumed the shape of a necklace and extended downward to a point ranging between the third interspace and the xiphoid process. Laterally the edema extended an equal distance on the two sides of the sternum, varying from a point 3 cm. from the edge of the sternum to the midclavicular line. The edema usually reached its height on the second day after its onset. In 3 patients the skin of the involved area assumed a dull red hue. Only 5 patients developed symptoms coincident with the edema; 2 complained of dysphagia of about twenty-four hours' duration, another of hoarseness, and 2 of tenderness over the sternum when pressure was applied. All patients were afebrile at the time of the edema. The frequency of orchitis was no greater in the group of 30 patients than in the remaining 472 patients. The authors think that obstruction to lymphatic drainage by the swollen glands is responsible for the presternal edema.

Cancer Research, Baltimore

4:673-736 (Nov.) 1944. **Partial Index**

Dependence of Genesis of Induced Skin Tumors on Caloric Intake During Different Stages of Carcinogenesis. A. Tannenbaum.—p. 673.
Influence of Bromobenzene on Induction of Skin Tumors by 3,4-Benzpyrene. H. G. Crabtree.—p. 688.
Influence of Malignant Cells on Growth of Fibroblasts in Vitro. R. J. Ludford and Hilda Barlow.—p. 694.
Ascorbic Acid Content of Liver in Pregnant Mice. E. L. Kennaway and N. M. Kennaway.—p. 704.
Serial Passage of Avian Lymphoid Tumor of Chicken. C. Olson Jr. —p. 707.

Gastroenterology, Baltimore

3:251-336 (Oct.) 1944

*Chronic Gastritis and Carcinoma of Stomach. S. Warren and W. A. Meissner.—p. 251.
Gastric Carcinoma: Observations on Peptic Ulceration and Healing. W. P. Palmer and Eleanor M. Humphreys.—p. 257.
*Disorders of Liver and Extrahepatic Biliary Ducts Associated with Cutaneous Xanthomas and Hyperlipemia. G. B. Eusterman and H. Montgomery.—p. 275.
Clinical Significance of Palpable Spleen. W. F. Lipp, Ellen H. Eckstein and A. H. Aaron.—p. 287.
Urobilinogen in Human Bile. I. R. Jankelson.—p. 292.
Varied Clinical Manifestations of Lymphosarcoma of Stomach. H. A. Rafsky, Harry Katz and C. I. Krieger.—p. 297.
Study of Alleged Effect of Milk on Human Gastric Potential and Description of New Method for Measuring the Potential. W. S. Rehm and A. J. Enelow.—p. 306.
Observations on Absorption and Excretion of Minerals by Rectal Mucosa in Man. F. R. Steggerda.—p. 314.

Chronic Gastritis and Carcinoma of Stomach.—Warren and Meissner discuss observations on the mucosa of 356 stomachs which were completely or partially removed for gastric carcinoma or for peptic ulcer. They found that chronic gastritis is a labile condition which may regress and which need not necessarily progress. Not all stages or types of chronic gastritis can be considered to be precancerous. The microscopic changes in chronic gastritis should be divided into exudative and epithelial, the former having no direct significance as a precancerous lesion. When epithelial changes become severe they may be comparable to well recognized premalignant lesions elsewhere in the body. Since one stage of chronic gastritis meets the necessary criteria for a precancerous lesion, it may be assumed that some gastric cancers arise on this basis.

Disorders of Liver Associated with Cutaneous Xanthomas and Hyperlipemia.—Eusterman and Montgomery report the history of a woman aged 48 who came to the Mayo Clinic in May 1941 complaining of severe, refractory generalized intense pruritus, continuous aching pain and hyperesthesia, especially in both extremities, cutaneous yellow nodules, gastrointestinal disturbances, loss of weight and strength, yellowing discoloration of the skin, and severe physical and nervous exhaustion. Physical examination disclosed icterus, anemia and cachexia of moderate degree in addition to a generalized xanthochromia, especially of the forehead, face, neck and thorax. Yellow nodules were present on the buttocks, lower part of the back, upper part of the thigh, elbows and both cheeks. Nodules and infiltrated plaques were present on the extensor surfaces of the legs, achilles tendons and eyelids. There were yellowish infiltrations demarking the creases of the palms, as well as discrete nodules on the palms and soles. The liver was firm, insensitive, not especially nodular and considerably enlarged. Although the feces were normal in color, biliuria was present. The serum bilirubin was 5 mg. per hundred cubic centimeters and there was a direct van den Bergh reaction. The bromsulphalein test disclosed retention of the dye grade 4. The albumin-globulin ratio was lowered, and severe hyperlipemia was present. A tentative diagnosis of xanthomatous biliary cirrhosis was made, and the prognosis was regarded as unfavorable. The treatment consisted of a high carbohydrate, high protein, minimal animal fat diet in addition to vitamin concentrates, iron and liver extract. In addition, 1½ ounces (45 Gm.) of a preparation of lipocaic was administered daily. Moderate improvement was followed by slowly progressive decline. Death occurred after three days of coma, presumably hepatic, and massive terminal gastroenteric hemorrhage. The authors emphasize that the hyperlipemia was very severe; the values for the plasma phospholipids and the plasma cholesterol were many times the normal values. The relative values for the various lipids was consistent with Thannhauser and Magendantz's concept of essention xanthomatosis as seen in so-called xanthomatous biliary cirrhosis. From the cutaneous standpoint this case substantiates a previous statement by one of the authors that involvement of the palms and soles is a frequent accompaniment of xanthomatosis associated with hepatic disease. The authors stress that cutaneous xanthomas and hyperlipemia occasionally occur in association with primary disease of the liver, so-called xanthomatous biliary cirrhosis, and in association with hepatic disease that is secondary to obstruction of the common bile duct, especially as the result of postoperative stricture. In cases in which the hepatic disease is primary, the prognosis is generally unfavorable. It is more favorable in cases in which the underlying pathologic process is due to obstruction of the common bile duct. The exact cause of cutaneous or systemic xanthomatosis remains to be determined.

Journal of Aviation Medicine, St. Paul

15:213-296 (Aug.) 1944

Some Observations on Validity of Schneider Test. C. Taylor and G. E. Brown Jr.—p. 214.
Neuropsychiatric Aspects of Civilian Pilot Examination. W. C. McConnell and W. H. McConnell.—p. 231.
Importance of Human Sizing Standards in Aviation. A Damon, F. E. Randall, R. S. Benton and Alice M. Brues.—p. 238.
Effect of Nasal Ventilation on Tubal Equalizing Efficiency in Flying Personnel. H. J. Sternstein and J. B. McGregor.—p. 244.
Role of Extraocular Musculature in Aviation Physical Examination. A. J. Herbolsheimer.—p. 258.
Allergy of Upper Respiratory Tract. E. E. Poos.—p. 264.
Preliminary Survey on Color Vision Plates of Shinobu Ishihara. G. S. Backenstoe.—p. 272.
Unusual Type of Aircraft Accident. I. M. Campbell.—p. 279.

Journal of Pharmacology & Exper. Therap., Baltimore

82:1-102 (Sept.) 1944

Control of p_H During Experiments on Mode of Action of Sulfonamides. J. S. Harris and H. I. Kohn.—p. 1.
Relative Rates of Absorption of Quinine and Some Other Cinchona Salts from Isolated Intestinal Loops of Dogs. W. E. Cornatzer and J. C. Andrews.—p. 3.
In Vitro Bacteriostatic Action of Some Simple Furan Derivatives. M. C. Dodd and W. B. Stillman.—p. 11.
Simple Method for Routine Search for Antibiotic Substances Produced by Molds. N. W. Pinschmidt and B. Levy.—p. 19.
Antispasmodic Activity of Some 4-Morpholinealkyl Esters. R. O. Bauer and F. F. Yonkman.—p. 23.
Absorption of 4:4'-Diamidino Stilbene (Stilbamidine) by Trypanosomes and Its Blood Concentration in Animals. F. Hawking.—p. 31.
Some Circulatory Effects of Privine Hydrochloride. G. A. Emerson.—p. 42.
Influence of "Heart Stimulants" on Contraction of Isolated Mammalian Cardiac Muscle. S. Krop.—p. 48.
Interaction Between Procaine, Cocaine, Adrenalin and Prostigmine on Skeletal Muscle. N. T. Jaco and D. R. Wood.—p. 63.
Antidiuretic Action of Morphine and Its Mechanism. R. C. DeBodo.—p. 74.
Effect of Ascorbic Acid on Acute Toxicity of Sulfanilamide for Guinea Pigs. L. Karel and C. W. Chapman.—p. 86.
Comparison of Action of l-Ethyl Theobromine and Caffeine in Animals and Man. C. C. Scott and K. K. Chen.—p. 89.
Comparison of Esters of Strophanthidin in Cats. F. A. Steldt, R. C. Anderson and K. K. Chen.—p. 98.

Journal of Urology, Baltimore

52:283-374 (Oct.) 1944

*Sterile Pyuria. W. T. Briggs.—p. 283.
Hematuria Due to Minute Changes in Renal Papillae. R. M. Bobbitt, C. A. Hoffman and S. Werthammer.—p. 288.
Renal Hypertension: Case. H. C. Bumpus Jr.—p. 295.
Pregnancy After Bilateral Ureteral Transplantation: Report of Case After Bilateral Ureterocutaneous Transplantation. L. Herman and L. B. Greene.—p. 300.
Xanthoma and Carcinoma in Diverticulum of Urinary Bladder. A. J. Scholl.—p. 305.
Papillomatosis of Bladder and Entire Urethra: Infiltrating Cancer of Bladder: Late Pulmonary Metastasis: Successful Pneumonectomy. C. L. Deming and G. E. Lindskog.—p. 309.
Retention of Urine in Children Due to Extravesical Pelvic Disease: Report of 2 Cases. C. P. Howze and D. S. Jaeger.—p. 319.
Orchiectomy for Carcinoma of Prostate: Personal Experiences. N. P. Rathbun.—p. 326.
Excretion of 17-Ketosteroids in Carcinoma of Prostate. E. G. Frame and H. J. Jewett.—p. 330.
Rupture of Testicle: Report of Cases and Review of Literature: V. S. Counseller and J. H. Pratt Jr.—p. 334.
Case of Epididymo-Orchitis Following Trauma. A. Mason and G. H. Reifenstein.—p. 338.
New Operation for Midscrotal Hypospadias. D. M. Davis.—p. 340.
Treatment of Renal Obstruction Resulting from Sulfadiazine and Sulfamerazine. O. J. Jensen Jr. and Charles L. Fox Jr.—p. 346.
Use of Dicumarol and Vitamin K in Urologic Cases. E. Smith and J. Kaufmann.—p. 353.
Studies Concerning Effects of Calcium on Urinary Tract. H. R. Trattner and B. J. Walzak.—p. 357.

Sterile Pyuria.—There exist several theories regarding the etiology of the so-called sterile pyuria. Evidence at present points to some gram positive coccus which is difficult to grow and hard to find in stained smears. The sulfonamides, usually so effective in coccic as well as in bacillary infections, are of little avail in this condition. Briggs thinks that, as Wildbolz

suggested, some of the arsenicals should be used for every patient presenting symptoms of renal tuberculosis unless a definite diagnosis has been made by finding the tubercle bacillus, by guinea pig inoculation or by pyelographic evidence of that disease. Other less toxic drugs should be tried before resorting to an arsenical. The author reports 4 cases in which neoarsphenamine was employed with good results. The disease is probably not due to a virus, because virus diseases do not respond to the arsenicals. It is seldom cured by the urinary antiseptics, including the sulfonamides. It responds to the arsenicals sometimes in a spectacular manner.

Military Surgeon, Washington, D. C.

95:345-440 (Nov.) 1944. **Partial Index**

Present Concepts of Virus Diseases. E. F. Pearson.—p. 345.
The Psychoneuroses of War. J. L. Henderson and M. Moore.—p. 349.
March Fractures: Series of 58. W. A. Dew and J. H. Wooten.—p. 356.
Effect of Small Dose of Penicillin on Diagnosis of Early Syphilis. G. F. Baier and J. A. Pincus.—p. 359.
Novocaine Iontophoresis for Painful Limitation of Motion. W. J. Snow and H. Kraus.—p. 360.
Gynecomastia in the Navy. G. V. Webster.—p. 375.
Treatment of Fractures of Adult Femur. V. L. Hart.—p. 379.
Military Considerations of Mental Deficiency. R. J. Lewinski.—p. 385.
Nutritional Evaluation of Overseas Ration. G. H. Berryman, C. R. Henderson, C. E. French and P. E. Howe.—p. 391.
Pilonidal Cysts: Observations on Their Surgical Treatment and Postoperative Convalescence. M. H. Sawyer and D. H. Kast.—p. 398.
Nicola Procedure for Recurrent Dislocation of Shoulder. W. F. Stanek and H. C. Andre.—p. 402.
Diagnosis of Meningococcic Infections: Use of Material from Skin Lesions. W. G. Bernhard and A. C. Jordan.—p. 405.
*Health Hazards Associated with the Welding Process. R. W. Quinn.—p. 410.
*Biologic False Positive Serologic Blood Tests Following Stimulating Dose of Tetanus Toxoid. L. L. Heimoff.—p. 419.

Health Hazards in Welding.—Quinn reports that 6 members of a light cruiser became suddenly ill. A common prodromal symptom was a sweetish taste for an hour or more preceding a severe substernal pain. This pain was followed or accompanied by general malaise, a severe chill, nausea and vomiting, and great weakness. The temperature rose from 2 to 5 degrees F. In 3 of the patients there was evidence of respiratory embarrassment, including dyspnea, cyanosis and orthopnea. In 2 symptoms and signs of acute pulmonary edema appeared, necessitating the administration of oxygen to 1 for several hours. On the following morning the temperature had returned to normal and the men felt much better. There was some remaining substernal soreness, headache and malaise but after a day or two at bed rest they were able to return to duty. The etiology and nature of this disease remained a mystery until it was discovered that the one feature common to all of the cases was a history of exposure to welding fumes on the day of onset of their illness. Each of these men had been exposed to a high concentration of welding fumes for at least a four hour watch in compartments where there was no ventilation. Questioning of the yard workers who were doing the welding revealed that it was caused by fumes resulting from galvanized metal welding and could be prevented by drinking a pint or a quart of milk. Classic metal fume fever is believed to be caused by inhaling tiny metal particles in the form of metallic oxides. Breathing nitrous gases which also are formed in the welding arc may produce a much more serious disease in the form of acute pulmonary edema, pneumonia or bronchitis. Deaths have been reported from this cause. Other injuries which may occur in welding are an acute form of keratoconjunctvitis, burns and electric shock. X-ray changes may occur in the lungs which closely resemble those of silicosis; however, there does not seem to be any change of function associated with these changes even after twenty years of welding. Conscientious observance of safety precautions will prevent accidents. The treatment of metal fume fever is purely symptomatic. Acute pulmonary edema may be a real emergency.

False Positive Serologic Tests Following Dose of Tetanus Toxoid.—Heimoff directs attention to the increased frequency with which false positive serologic reactions for syphilis are encountered. The author has recently had under observation 8 cases with biologic false positive serologic reactions. These cases were interesting in that the only common factor to all of them was that recently a stimulating dose of tetanus toxoid had been administered. The 8 cases cited should give medical officers cause for delay before starting antisyphilitic treatment merely on the basis of one or two positive Kahn tests. It will be noted that the Wassermann reaction remains either negative or doubtful in all of these false positive reactions. Whether this is due to a truer specificity of the Wassermann test or to a lack of sensitivity in this test, the desirability for having confirmatory Wassermann tests along with a positive Kahn test should be self evident. The author emphasizes that in persons with negative clinical findings, negative history and positive Kahn tests careful questioning as to recent immunization procedures or febrile conditions may give the clue to the cause for the positive serologic test.

New Jersey Medical Society Journal, Trenton

41:361-394 (Oct.) 1944

Gastrointestinal Problems in Army. J. E. Berk.—p. 365.
Adoption—Law and Physician. Ellen C. Potter.—p. 371.
Therapy of Arthritis. H. H. Tillis.—p. 374.
Social Problems in Obstetrics and Gynecology: Maternal Welfare Article Number 87. A. F. Guttmacher.—p. 377.

41:395-426 (Nov.) 1944

Massive Edema in an Acute Systemic Disease Resembling Disseminated Lupus Erythematosus Syndrome. H. A. Christian and M. M. Rubin.—p. 398.
Waterhouse-Friderichsen Syndrome. J. G. Kaufman.—p. 400.
Bronchogenic Carcinoma. T. G. Schnabel.—p. 402.
Fallacy of Massage in Treatment of Obesity. S. W. Kalb.—p. 406.

Ohio State Medical Journal, Columbus

40:1035-1063 (Nov.) 1944

Prevention of Industrial Dermatoses. C. Leggo.—p. 1035.
Disqualifying Pulmonary Defects in 100,000 Selectees Examined Radiographically by Armed Forces Induction Station. M. W. Seymour.—p. 1041.
Intestinal Parasitism in Cleveland City Hospital, 1939-1944. W. D. Davis and R. W. Scott.—p. 1046.
Neurotic Reactions in Soldiers. J. Fetterman.—p. 1051.
Severe Toxicity and Death Caused by Sulfathiazole: Case Report and Necropsy Findings. C. F. Vilter and I. M. Schenker.—p. 1057.
Bitter Pen. H. Dittrick.—p. 1062.

Radiology, Syracuse, N. Y.

43:425-530 (Nov.) 1944

Diagnostic Roentgenology in Army General Hospital During Present War. J. C. Bell and G. W. Heublein.—p. 425.
Intraocular Calcium Shadows: Choroid Ossification. F. G. Kautz and I. Schwartz.—p. 486.
*Value of Axial Projection of Petrous Bone in Diagnosis of Chronic Mastoiditis and Cholesteatoma. G. Danelius.—p. 492.
Photofluorography for Chest Surveys. M. W. Mason.—p. 499.

Axial Projection of Petrous Bone in Chronic Mastoiditis.—According to Danelius the pathologic process of chronic mastoiditis is most frequently established within or near the mastoid antrum and tympanic cavity. Good roentgenographic demonstration of these structures is of paramount importance, but it is rarely if ever obtained by means of the routine projections. Recently the cranially eccentric base views of Steward and Chamberlain-Towne have been recommended for problems concerning the mastoid antrum. In the author's experience, however, these do not display the wealth of detail and convincing clarity of the projection described some twenty-odd years ago by Mayer of Vienna. This view is technically difficult and intricate and the distortion of the temporal bone, with the exception of the antrum, tympanic cavity, external auditory meatus and venous sinus, is considerable. Moreover, Mayer's instructions for placing the patient and arranging the tube and film cassette are difficult to follow. The author describes the positioning of the patient and the arrangement of tube and cassette. He describes and illustrates the anatomic and technical features of the axial projection of the petrous bone. On the basis of cases corroborated by operation, he illustrates the different types and degrees of chronic inflammatory changes at the mastoid antrum. There are several important limitations in diagnostic interpretation: 1. Roentgenographic differentiation of an undeveloped, diploic, not diseased mastoid from a chronic sclerosing mastoid without antrum enlargement is not possible on purely roentgenologic criteria. 2. A cholesteatoma which has attained a considerable size is easily diagnosed as such during the quiescent stage by its smooth, regular borderline. During an acute exacerbation this distinct borderline becomes dissolved and blurred, thus making

a differentiation between a granulomatous, purulent enlarged antrum and a cholesteatoma in the stage of acute exacerbation impossible. 3. A postoperative defect may at times present an appearance similar to that of cholesteatoma. In typical cases, however, the roentgenologic aspects are such that the roentgenologist can stand his ground even if the otologist should at first be of a contrary opinion.

Review of Gastroenterology, New York

11:291-362 (Sept.-Oct.) 1944

General Presentation of Some Recent Advances in Gastroenterology. A. Bassler.—p. 311.
Clinical Studies on Berry of Sorbus Aucuparia: Its Effect on Plasma Prothrombin, on Volume and Cholic Acid Content of Bile, and on Glucose Tolerance Mechanism. C. J. DeLor and J. W. Means.—p. 319.
Gastroscopic Preparation with Demerol Hydrochloride. A. R. Hufford. —p. 328.
Classification of Diarrheas. L. Pelner.—p. 332.

Virginia Medical Monthly, Richmond

71:553-602 (Nov.) 1944

Physicians, Wake Up! C. B. Bowyer.—p. 557.
Recent Advances in Electrocardiography: Earlier Objective Diagnosis of Angina Pectoris. J. M. Bryant and J. E. Wood Jr.—p. 562.
Histaminic Cephalgia with Specific Therapy. W. H. Higgins.—p. 578.
Tuberculosis in the Aged. C. L. Harrell.—p. 579.
Medical Progress During Last Sixty Years. M. O. Burke.—p. 584.
Care of Preschool Children of War Working Mothers—Health Department Study of Their Physical Conditions. W. Y. Garrett.—p. 588.
Are Solutions of Sulfa Drugs Self Sterilizing? F. J. von Gutfeld. —p. 589.
*Rocky Mountain Spotted Fever—Clinical Report. H. S. Fletcher and J. P. Lynch.—p. 591.

Rocky Mountain Spotted Fever.—Fletcher and Lynch report a case of Rocky Mountain spotted fever in a girl aged 2½ years. On the day after admission, intramuscular injections of penicillin were begun, 5,000 Oxford units being given every hour for five days until a total of 200,000 units had been given. The temperature during all this time averaged 102 F. and returned to normal with complete recovery nineteen days after the onset or eleven days after the beginning of penicillin treatment. Penicillin apparently had no effect on the course of the disease.

War Medicine, Chicago

6:217-282 (Oct.) 1944

Problems of Naval Psychiatry. F. J. Braceland and H. P. Rome. —p. 217.
*Etiology and Pathogenesis of Neurocirculatory Asthenia: I. Hyperthermia as One of Manifestations of Neurocirculatory Asthenia. M. Friedman.—p. 221.
Effect of Sulfonamide Drugs on Experimental Gunshot Wounds of Peripheral Nerves. L. Davis, G. Perret and W. Carroll.—p. 228.
Immunity to Diphtheria in Army Personnel. S. Karelitz and R. E. Moloshok.—p. 232.
Use of Industrial Incentives in War Production of Medical Material. E. R. Eaton.—p. 236.
*Physiologic Effects of Drinking Undiluted Sea Water. J. R. Elkinton and A. W. Winkler.—p. 241.
*Bacillary Dysentery. H. M. Hurevitz.—p. 247.
Mediastinal Emphysema Resulting from Exposure to Pulmonary Irritant. R. W. Monto and P. S. Woodall.—p. 251.
Simple and Rapid Methods of Detroying Crab Lice: Report of Its Use in 12 Cases in South Pacific. D. O'Donnell.—p. 253.

Hyperthermia as Manifestation of Neurocirculatory Asthenia.—Friedman attempted to determine (1) the frequency, nature and identifying characteristics of hyperthermia frequently found in neurocirculatory asthenia and (2) the effect of various agents and stimuli on the temperature of such hyperthermic patients. His studies were made on 30 soldiers of an average age of 26 years who manifested symptoms of neurocirculatory asthenia. The diagnosis was made when symptoms of fatigue, dyspnea on slight exertion, palpitation and precordial pain were experienced by a patient who, in addition, exhibited signs of a neurovascular disorder (facial flush, cold, wet hands, labile pulse, dermographism, tremor of outstretched hands and inability to refrain from respiration for over thirty-five seconds) but no indications of organic disease. A patient with the syndrome of neurocirculatory asthenia was considered hyperthermic if his oral temperature was found to be 99.2 F. or above on more than three occasions during ten days of observation. Eleven of the 30 patients were found to exhibit an episodic type of fever accompanied by moderate tachycardia, increased tremor, localized perspiration and coldness of the skin of the extremities. Despite extensive clinical, laboratory and roentgenographic investigations, no evidence of infection was found in any of the hyperthermic patients. The character of the fever was found to differ in certain respects from that of fever observed in patients with a typical chronic infectious process. The hyperthermic patients also exhibited during their febrile periods significantly different clinical conditions than those usually found in febrile patients suffering from chronic infectious disease. Epinephrine hydrochloride, amphetamine sulfate, citrated caffeine, typhoid vaccine and psychic stimuli were found capable of inducing elevations of temperature in these patients during normally afebrile periods. No sedative, however, was found which was capable of preventing or reducing their febrile reactions. The fever with its accompanying signs observed in these patients is thought to result from abnormal activity of the hypothalamus.

Physiologic Effects of Drinking Undiluted Sea Water.—Elkinton and Winkler cite cases of shipwrecked persons who died after drinking undiluted sea water. The mind was usually affected, and suicidal attempts were common. The clinical syndrome following the ingestion of undiluted sea water is one in which disturbances of the central nervous system predominate. Modern views seek to relate the ill effects of the drinking of sea water to its hypertonicity, it being a salt solution with an average concentration of 3.5 per cent. Experiments with human and animal subjects following the ingestion of hypertonic saline solution suggest a reasonable tentative explanation of the deleterious and ultimately fatal effects of this procedure. Persons deprived of fresh water can drink little if any sea water without becoming further dehydrated. This dehydration at first affects both intracellular and extracellular fluid. With persistent drinking of sea water dehydration of the cells progresses much more rapidly than does that of the extracellular space, the volume of which is maintained by the retention of sodium chloride. Ultimately extreme intracellular dehydration produces disturbances of the nervous system with terminal respiratory failure, while the absence of extracellular depletion permits the circulation to function adequately until the end. It has been urged that castaways emulate seals, which do not drink sea water but meet their water requirements entirely from the body fluids of fish. The extensive promotion of this emergency measure has far outstripped its experimental investigation. While entirely reasonable from the point of view of salt excretion, since concentration of salt in the body fluids of fish is nearly isotonic, it ignores the fact that much urea is formed from the protein of fish and that this urea requires extra water for its excretion. Ingestion of fish does not ameliorate dehydration in human beings, since all the water in the fish is required for the excretion of the urea. Seals, like dogs, presumably can excrete the urea with a smaller volume of water and can so retain some of the water for other purposes.

Bacillary Dysentery.—Hurevitz shows that in this as in other wars bacillary dysentery is one of the most significant causes for disability among soldiers. He presents an analysis of the cases of 1,120 soldiers who were admitted to an overseas station hospital with the diagnosis of diarrhea or dysentery during the period between May 1 and November 1. Five hundred and eighty-seven had stool cultures positive for dysentery bacilli, of which 409, or 69.8 per cent, were positive for Shigella paradysenteriae. The symptoms ranged from extremely mild manifestations to severe toxemia. Treatment in all cases was carried out with either sulfaguanidine or sulfadiazine. Special emphasis was placed on adequate fluid intake and nursing care. All patients recovered from the dysentery infection. One patient died, but at necropsy he was found to have had bacterial endocarditis with old rheumatic aortic and mitral lesions.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

52:455-490 (Nov.) 1944

Report of Thirty Causes of Benign Menopausal Bleeding. W. J. Reich, Helen Button and M. J. Nechtow.—p. 455.
Histologically Benign Thyroid Tumors Producing Paraplegia and Chyluria. H. A. Tucker.—p. 467.
Summary of Improved Medical and Personnel Procedures for Women in Industry. M. R. Burnell.—p. 470.
Modern Trends in Gastric Surgery Through 1943. D. Metheny.—p. 476.
Review of Recent Advances in Large and Small Bowel Surgery. W. B. Hutchinson.—p. 481.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

17:291-322 (Oct.) 1944

X-Ray Diagnosis in Gunshot Wounds of the Abdominal Cavity and Its Significance in Field Surgery. S. A. Reinberg.—p. 291.
Four Primarily Radiologic Lesions Found in Traumatic Chest Cases: Preliminary Report. C. J. Hodson.—p. 296.
Linear Radium Source Dose Calculators. L. A. W. Kemp.—p. 300.
Osteochondritis of Patella. H. Jungmann.—p. 305.
Investigation of Sciatica and Lumbago—Radiologic Aspect. J. F. Brailsford.—p. 308.
Case of Patent Ductus Arteriosus Associated with Multiple Pulmonary Aneurysms and Infective Endocarditis. H. R. Holmes.—p. 312.
Localization of Foreign Bodies by Radiometric Method. W. H. Hastings.—p. 316.
Tomographic Appearance of Azygos Lobe, with Description of 2 Cases and Report of 7 Cases. J. H. Crawford.—p. 319.

British Medical Journal, London

2:459-488 (Oct. 7) 1944

Surgery in Tunisia, November 1942 to May 1943. J. M. Weddell.—p. 459.
Investigation and Treatment of Enuresis in Army: Preliminary Report on 277 Cases. P. L. Backus and G. S. Mansell.—p. 462.
Postoperative Chest Complications in Gastric Surgery. T. W. Mimpriss and F. G. Etheridge.—p. 466.
Two Varieties of Leukemia in One Family. R. W. Meikle.—p. 468.
Superficial Gangrene in Adolescent Diabetes. H. Whittaker.—p. 469.

Medical Journal of Australia, Sydney

2:325-348 (Sept. 23) 1944

Control of Tuberculosis. D. L. Anderson.—p. 325.
Insomnia. L. Hughes.—p. 330.
*Insomnia. S. E. Jones.—p. 332.
Tropical Anidrotic Asthenia: Preliminary Report. S. D. Allen and J. P. O'Brien.—p. 335.
Examination of Public Health Regulation Governing Scarlet Fever. R. J. Jackson.—p. 337.

Insomnia.—According to Jones, insomnia is the symptom most frequently complained of by patients with nervous and mental disorders. Sleeplessness often precedes the appearance of other signs of nervous or mental disorder, and in young persons prolonged insomnia should arouse suspicion that a psychoneurosis or psychosis is imminent. The majority of patients with insomnia suffer no physical reaction to prolonged sleeplessness. Little sleep is required to remove the effects of fatigue and to maintain life. There are two kinds of sleep, one being physiologic and essential for the maintenance of life and the other being psychologic and its amount being determined by habit and custom. Psychic reactions to sleeplessness are not the direct result of lack of sleep but represent the patient's emotional response to deprivation of a customary mode of escape. The secondary psychic results of insomnia are irritability, inability to concentrate, loss of interest and depression. Like other neurotic symptoms, insomnia may have value to the patient as an alibi for the evasion of duties or responsibilities. In most neuroses and in anxiety states, sleep is inhibited by patients' filling their minds with emotional thoughts, by worries and by preoccupation with the idea of inability to sleep. Sleep is delayed by grief and worries, by fear and by anxious expectation. Total or absolute insomnia is rare in the neuroses. It is seen in the psychoses, in acute mania and melancholia and in toxic and confusional states. In neurasthenia, patients experience difficulty in getting to sleep and often awake suddenly, sweating and trembling. In hypochondriasis sleeplessness sometimes constitutes the focus of fixation of the patient's interest. Persistent insomnia is sometimes indicative of simple depression (melancholia). The essential preliminary to treatment is a careful estimation of physical and psychologic factors that have a bearing. The first essential in psychotherapy is persuading the patient to adopt a correct mental attitude to his sleeplessness; his mind must be disabused of the common belief that lack of sleep is followed by grave consequences. Nervous patients should not retire too early and should avoid sleeping during the daytime. They must learn to abandon their mental activities when they retire. Heavy meals and stimulating drinks should be avoided before retiring. When insomnia is absolute, as in acute mania, delirium tremens or confusional psychoses, there is a temptation to use dangerous doses of powerful hypnotics. It is, however, better to repeat safe dosage than to give larger initial doses. The barbiturates represent the most useful class of hypnotic drugs; they are well tolerated, act rapidly, leave little "hangover" and have little habit forming tendency. It will be found desirable to change the drug from time to time.

Wiener medizinische Wochenschrift, Vienna

93:77-94 (Jan. 30) 1943. **Partial Index**

Evaluation of Patients' Ability to Stand Surgical Intervention. E. von Novák.—p. 77.
*Treatment for Ophthalmic Headache with Procaine Hydrochloride Infiltration of Greater Occipital Nerves. V. Papilian, I. G. Russu and I. Pacurariu.—p. 82.
Ear Complications in Leiner's Disease. G. Fabinyi.—p. 83.

Procaine Infiltration of Greater Occipital Nerves in Ophthalmic Cephalalgia.—Papilian and his associates report 5 cases of severe headache resulting from diseases of the eye, particularly of the glaucoma type, in patients between the ages of 29 and 70 years. Procaine hydrochloride infiltration of the two great occipital nerves was performed, 15 cc. of 1.2 per cent solution of the drug being injected into each nerve. Relief resulted within a few hours and the severe headache disappeared completely within twenty-four hours in 4 of the cases in which hemicrania was associated with subacute iridocyclitis, contusion of the eyeball and subluxation of the crystalline lens and with leukoma adherens and secondary glaucoma. The headache recurred within forty-eight hours in 1 case of left hemicrania associated with leukoma adherens and painful secondary glaucoma of the left eye. Procaine hydrochloride infiltration was repeated and the headache disappeared. The analgesia continued, and the patients were dismissed on their own request but warned to return to the hospital if the headache recurred. The therapeutic results of the anesthesia of the large occipital nerves were the same in all the cases although they differed anatomically. The pain disappeared but its cause was not removed. A definite tendency to recovery was observed and may be explained by the disappearance of the irritative pain factor.

Khirurgiya, Moscow

1:3-39, 1944. **Partial Index**

Gunshot Wounds of Joints: Their Treatment. V. S. Levit.—p. 3.
Pathologic Anatomy of Gunshot Wounds of Knee Joint. P. P. Dvizhkov.—p. 8.
*Treatment of Gunshot Wounds of Large Joints. E. K. Molodaya.—p. 12.
Resection of Joints After Gunshot Wounds. A. T. Lidskiy.—p. 21.
Gunshot Wounds of Elbow Joint. A. T. Makhotina.—p. 27.
Gunshot Coxitis. M. O. Fridland.—p. 32.

Treatment of Gunshot Wounds of Large Joints.—Molodaya reports 923 cases of gunshot wounds of the larger joints treated in an evacuation hospital. There were 472 instances of gunshot injuries of the knee joint, of which 290 (61 per cent) were treated conservatively. In all, 182 operations were done. The postoperative mortality amounted to 3.8 per cent, while the general mortality amounted to 1.4 per cent. The conservative treatment of knee joints consisted of a circular plaster of paris cast with inclusion of the pelvis. To prevent atrophy of the muscles and contractures the cast was removed in from ten to fourteen days and therapeutic exercises were practiced. Resection of the knee joint without drainage was found to be the operation of choice for gunshot wounds of the knee joint complicated by fractures and osteomyelitis. Ollier's subperiosteal resection resulted, as a rule, in regeneration of bone from the periosteum and in elongation of the femur. Early resection or disarticulation is indicated in gunshot injuries of the hip joint in the majority of instances. Prophylaxis of postoperative shock consists in substitution of local anesthesia for general narcosis, preliminary ligation of the femoral artery and transfusion of large amounts of blood into the femoral vein at the beginning and at the end of the operation. The best treatment for gunshot wounds of the elbow joint complicated by fractures is early subperiosteal resection with early therapeutic exercises.

Book Notices

Lectures on the Kidney. By Homer W. Smith, A.B., Sc.D., M.S., Professor of Physiology and Chairman of the Physiology Laboratories, New York University College of Medicine, New York. Porter Lectures Series IX. Delivered at the University of Kansas School of Medicine, Lawrence, Kansas City. The William Henry Welch Lectures Delivered at the Mount Sinai Hospital, New York City. Cloth. Price, $1. Pp. 134, with 13 illustrations. Lawrence, Kansas: University Extension Division, University of Kansas, 1943.

In this book are brought together the three Porter Lectures given in 1939 and the two William Henry Welch Lectures delivered in 1943 by Dr. Homer W. Smith. The first lecture, on the "Evolution of the Kidney," is a fascinating story of the accommodation of the kidney, in both structure and function, to the changing conditions of successive geological revolutions, periods and eras. Inherent in this story are the teleological reasonings and imaginative explanations so necessary to fill in the gaps where evidence is lacking. One of the conclusions reached is that in structure and function the human kidney differs only in details from that of the dog and some other animals and that its closest analogue in function is in the kidney of the great apes. Although much about renal function in general has been learned from studies on the frog, yet the results of those made on the dog are more directly applicable to the problem of renal function in man. This lecture provides a good introduction to the lectures that follow. The remaining four lectures, which deal in great part with the studies of Homer Smith and his collaborators, show how much more can be learned about renal function in man from direct observations on man. The lecture on "Renal Physiology Between Two Wars" gives the more immediate background for these studies, which involved the development of special methods for the estimation of renal function in health and disease and especially in the hypertensive state. The author and his collaborators, not content with the mere estimation of total renal function, devised methods whereby they were able to determine, at least approximately, the amount of blood flow through the kidneys and the part played by filtration through the glomeruli and excretion and reabsorption through the tubules in the final production of urine. The last three lectures give the results of these studies in considerable detail and cannot be summarized in a review of this kind. It is necessary to read the publications and become familiar with the newer methods and terminology in order to be able to evaluate the results of these studies and the conclusions reached. The book gives the reader the information necessary to familiarize him with the large series of publications which these lectures represent.

Speech Reading—Jena Method: A Textbook with Lesson Plans in Full Development for Hard-of-Hearing Adults and Discussion of Adaptations for Deaf and Hard-of-Hearing Children. By Anna M. Bunger, Instructor of Speech Reading, Department of Special Education, Michigan State Normal College, Ypsilanti, Michigan. Revised edition. Cloth. Price, $2.50. Pp. 136. Danville, Illinois: The Interstate, 1944.

The title of this textbook may be puzzling to the uninitiated. It is a synonym for what is more commonly termed "lip reading." The book is a revised edition of mimeographed material published in 1932 by Miss Bunger and Miss Bessie L. Whitaker, both of Michigan State Normal College at Ypsilanti, Mich. The general format and presentation of material follow the theories developed at Jena, Germany, by the late Dr. Karl Brauckmann. These theories have been developed and tested over a period of some twelve years by Miss Bunger and her associates. Miss Bunger points out that "listening has been too long . . . considered a purely auditory affair" and that the progressive teacher of speech reading should emphasize the aspects of "sharp observation" and hearer-responsiveness to the spoken word. For this reason, she feels that her book presents material valuable to all students of oral communication.

Lesson plans are mapped out to develop kinesthetic awareness of speech movements and ability to imitate the speaker, to stress development of syllable drills (including word, phrase and sentence series) and to develop a sense of rhythmic coordination of the spoken and the auditory process.

There is much excellent material in the book, but it suffers from a confusing presentation and a paucity of explanation. To cite one example, the author uses several symbols to indicate various rhythmic patterns but nowhere explains the respective significations of the symbols; in consequence, the reader is forced to puzzle them out for himself. Adding to the confusion is the fact that, although the book is written in the third person, the author frequently shifts to the role of the speech reading teacher giving instructions to her pupils. There are no quotation marks or variations in typography to indicate the shift to direct conversation. Despite these criticisms, Miss Bunger's textbook should be valuable to those who teach lip reading. In addition to a series of suggested lesson plans, it contains a list of words most commonly used, a brief index and a helpful bibliography.

Theory of Occupational Therapy. By Norah A. Haworth, M.A., M.R.C.S., L.R.C.P., Assistant Medical Officer, London Passenger Transport Board, and E. Mary MacDonald, Principal, Dorset House School of Occupational Therapy, Barnsley Hall Emergency Hospital, Bromsgrove. With foreword by Sir Robert Stanton Woods, M.D., F.R.C.P., Consultant Adviser in Physical Medicine to the Ministry of Health. Second edition. Fabrikoid. Price, $2.50. Pp. 148, with 68 illustrations. Baltimore: William Wood & Company, 1944.

The authors include in occupational therapy "any work or recreational activity, mental or physical, definitely prescribed and guided, for the distinct purpose of contributing to and hastening recovery from disease and injury." The relationship of occupational therapy to other forms of physical medicine is clearly stated in the preface by Sir Robert Stanton Woods, consultant adviser in physical medicine to the Ministry of Health in London.

This book was written primarily for students and nurses. Its elementary character and brevity preclude its use as a textbook, but prospective students will find it very helpful. It is also an excellent introduction for the many physicians in America who are beginning to become interested in occupational therapy. Throughout the book there are many practical applications of this form of treatment for patients in general hospitals, tuberculosis sanatoriums and mental wards.

The book, written and printed in England, contains chapters on training, bibliography and finance that are not pertinent to conditions in the United States. Furthermore, educational programs in America include a greater amount of training and more careful standardization and accrediting. Nevertheless the chapters on equipment, apparatus and materials and records and prescriptions are quite valuable.

Physiology in Health and Disease. By Carl J. Wiggers, M.D., D.Sc., F.A.C.P., Professor of Physiology and Director of Physiology Department in the School of Medicine of Western Reserve University, Cleveland, Ohio. Fourth edition. Cloth. Price, $10. Pp. 1,174, with 247 illustrations. Philadelphia: Lea & Febiger, 1944.

Much recent progress in physiology has been due to the special studies associated with war problems. This edition has recognized that fact and has added or revised its discussions of nerve degeneration, eye fatigue, color appreciation, camouflage, dark adaptation, auditory efficiency, somatic and visceral pain, auditory efficiency, principles of transfusion, blood substitutes, hemorrhage and shock, artificial respiration, dietary deficiencies, physical fitness and fatigue, water deprivation, acclimatization, altitude, air and seasickness and other sections as well. Approximately one third of the text has been completely rewritten, and other sections have been significantly altered. It is consequently apparent to how great a degree the knowledge of this fundamental science has been subject to recent change and how successful the author is in keeping this authoritative textbook abreast of advances in the field.

The Gastro-Intestinal Tract: A Handbook of Roentgen Diagnosis. By Fred Jenner Hodges, B.S., M.D., Professor of Roentgenology, University of Michigan Medical School, Ann Arbor, Michigan. Cloth. Price, $5.50. Pp. 320, with illustrations. Chicago: Year Book Publishers, Inc., 1944.

The author has contrived to put into this little handbook a readable and comprehensive discussion of gastrointestinal radiology. The illustrations are exceptionally well done and are grouped in such a way that several roentgenograms illustrative of an individual case are presented side by side on the same page, thus facilitating comparison. The reader is made to appreciate that in the gastrointestinal tract fluoroscopy is an important adjunct of the x-ray examination, offering as one of its chief advantages the opportunity to make "aimed" roentgenograms, sometimes spoken of as "spot films." The author and the publisher have succeeded admirably in the production of a useful handbook covering the digestive tube and the biliary tract.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HIBERNATION

To the Editor:—**Will you please send me information on the physiology and pathology of hibernating animals during the period of hibernation. Particularly I should like to know if there is consumption of tissue other than fat to maintain life during the starving of hibernation. Are there pathologic changes following hibernation? It would seem that the normal maintenance of life would require the consumption of all three essentials of normal diet, fats, proteins and sugar or starch. Does sclerosis occur during hibernation, and is it of the fibrosis or calcium replacement type or a degree of both?**

A. J. Alcorn, M.D., Chicago.

ANSWER.—Hibernation is the ability of certain homoiothermal (warm blooded) animals, deprived of food and exposed to the cold, to revert to the poikilothermal (cold blooded) state, thus making their supply of fuel (fat) last through the winter season. Their metabolism is, in the main, that of starving nonhibernating animals, accentuated by the depressing effect of low temperature on all body functions. The respiratory quotient during hibernation is even lower than in ordinary starvation, suggesting that fat is the principal if not the only source of energy. The blood sugar is said to be lower than normal, with insulin injections favoring the onset of hibernation. There is a drop in total phosphorus and in acid insoluble phosphorus in the blood, as well as an increase in the potassium-calcium ratio. A liberal supply of vitamin D was found to hinder hibernation.

Adrenalectomy, as rapidly fatal to hibernating animals as to other mammals during the summer season, has no effect during hibernation. Other changes in the endocrine glands have been reported, including the presence of certain substances in the "brown fatty tissue," known as the interscapular or hibernating gland. Extracts prepared from that tissue, removed from a hibernating hedgehog, when injected into rats led to a state of depression and a drop of 20 to 30 per cent in the basal metabolic rate.

No disease appears to follow hibernation, but there is a pronounced hypertrophy of the hypophysis, probably related to the effect of light and responsible for ushering in the spring breeding season.

POTASSIUM BITARTRATE AS POWDER FOR SURGEONS' GLOVES

To the Editor:—**Recently there appeared in The Journal an article to the effect that talcum powder should be abandoned as an agent for keeping surgeons' gloves dry. In its place, cream of tartar was advocated. This latter has been utilized in our hospital for some time and has proved to be unsatisfactory because of its caking qualities. Would it not be wise to offer some suggestion as to how these caking qualities may be obviated?**

M.D., Connecticut.

ANSWER.—The St. Louis Barnard Skin and Cancer Hospital workers report that they carried out a large series of experiments on the caking properties of potassium bitartrate and found, without exception, that caking did not occur when the powder was sterilized for not more than fifteen minutes at not more than 15 pounds of steam pressure. It may show a tendency toward clumping, but if sachets are used the clumps are readily broken by finger pressure. If, on the other hand, powder shakers are used, mere agitation of the shakers will break up the clumps. These same workers announce that within a reasonable time they hope to see on the market a new process starch powder that does not gel on autoclaving, that is somewhat smoother than the bitartrate and that may prove to be a cheaper product.

ROTARY NYSTAGMUS

To the Editor:—**I would appreciate information about the significance of the isolated finding of rotary nystagmus. A Negro woman aged 42 suffers from a recurrent pyelitis. During a routine examination the rotary nystagmus was discovered. The patient herself maintained that she has never been aware of its presence, but inquiry from relatives makes it likely that this nystagmus has been present at least since high school days. A neurologic examination gave results entirely within normal limits, except for the nystagmus. There is no history of syphilis, and the Wassermann reaction is normal.**

M.D., California.

ANSWER.—Rotary nystagmus may be congenital. It also occurs in cases of poor or defective visual acuity and in ocular muscular weakness. It is seen in acute lesions of the internal ear. It is not a sign of organic disease of the central nervous system.

TRANSPLANTATION OF URETERS FOR EXSTROPHY OF BLADDER

To the Editor:—**Is not the transplantation of the ureters the best procedure in exstrophy (atrophy) of the bladder? If any one has had success with plastic operations, please refer me to the articles in the literature. My patient is 15 years of age. The vaginal orifice is at the normal site of the symphysis pubis, which does not appear to be present. The ureteral openings are visible but to date there has been no ascending infection.**

D. Guilford Dudley, M.D., Endicott, N. Y.

ANSWER.—Exstrophy of the bladder is best treated by transplantation of the ureters into the sigmoid with subsequent removal of the bladder tissue. The method of inserting the ureters into the bowel most frequently used is that suggested by Coffey with modifications by Dr. C. H. Mayo. Some surgeons transplant the two ureters at the same time. The success of this operation in suitable subjects and in young children has been most encouraging. It is stated that there has been no ascending infection in this patient, in spite of the fact that the ureters are visible. This is a peculiarity of this condition in that ascending infection apparently is prevented by nature's valvelike mechanism in the lower ureter with the aid of ureteral peristalsis.

It would be advisable to make an excretory urogram before operation in order to determine the comparative function of the kidneys and the presence of any dilatation in either ureter or pelvis. The symphysis pubis is usually absent in most children with exstrophy of the bladder. Results of this type of operation are well exemplified in articles by Walters and Braasch (*Am. J. Surg.* **23**:255 [Feb.] 1934) and by Higgins (Transplantation of Ureters into the Rectosigmoid in Infants, *J. Urol.* **50**:657 [Dec.] 1943).

HYPERSENSITIVE NASAL MUCOSA

To the Editor:—**A man aged 55 complains of a hypersensitive nose, which at times discharges a large amount of thin mucus. This occurs regularly and profusely at meal times and may occur any time during the day. Under normal conditions the nasal membranes appear slightly pale, the turbinates are normal, the septum is normal and the large sinuses are normal. He does not sneeze, and the nose is never stuffy. I believe that this is a nerve irritation and is in some way connected with the innervation of the salivary glands. I have cauterized the turbinates with no improvement. I should like advice as to treatment.**

Carl C. Cowin, M.D., Hollywood, Calif.

ANSWER.—Sneezing, rhinorrhea and nasal blocking are the common symptoms of the hypersensitive nose. It is not necessary for all of these manifestations to be present; one or two may predominate or even be the sole manifestation. Thus we find some people in whom sneezing is a predominant symptom, others in whom blocking of the nasal passages may be the only manifestation, while in still others a profuse rhinorrhea is a sign of the hyperesthetic rhinitis. The patient under question apparently falls in this group. The diagnosis could be corroborated still further by the finding of eosinophils in the nasal smear. It would be wise to regard a patient like this as allergic until proved otherwise. A serious attempt should be made to make an etiologic diagnosis by means of skin tests. If these do not yield results, restricted diets should be tried with a view to determining a food allergy.

DIABETES AND IMPOTENCE

To the Editor.—**Have any instances of impotence or diminished sexual desire been observed in man receiving prolonged and high doses of insulin? Is such a condition at all probable?**

M.D., California.

ANSWER.—Obviously one sees impotence and diminished sexual desire in man receiving prolonged and high doses of insulin, because prior to the introduction of insulin the average age of diabetic patients was 44 years at death and now is 65 years. If anything, adequate control of the diabetes will improve rather than diminish sexual function. It is true, however, that long continued, poorly controlled diabetes, which implies inadequate use of insulin, may result in impotence in a comparatively young man.

SKIN TESTING FOR ALLERGY

To the Editor:—**Can you advise me about the relative values of the patch, scratch and intracutaneous methods of skin testing for allergies? I intend to purchase a new diagnostic set and would appreciate the information.**

Allen G. Janecky, M.D., Thief River Falls, Minn.

ANSWER.—The patch, scratch and intracutaneous methods of testing cannot be compared. The patch test is used only for cases of contact dermatitis. The scratch and intracutaneous methods of testing may be compared. Scratch tests will produce positive skin reactions less frequently than intracutaneous tests. They are, however, safer than intracutaneous tests. Intracutaneous tests will produce positive reactions more frequently and are considered more dangerous in the hands of an inexperienced worker than the scratch test technic.